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ABSTRACT

The interaction of Harvard University scholars with outside institutions is examined, as is the need for the university to monitor and regulate these outside activities. Harvard scholars were found to maintain 38 directorships with Fortune 500 companies, 60 ties to the biotechnology industry, over 500 contacts between faculty at the Business School and corporate America, and over 50 slots on federal advisory committees. Because of the secrecy surrounding scholars' outside activities, this information is considered to be only the surface of academic moonlighting. Examples are provided of the ways in which extensive outside relationships lead to conflicts of commitment and direct and indirect conflicts of interest. In addition, examples are provided of corporate attempts to coopt academics by employing them as consultants or directors. It is recommended that, to address these problems, Harvard compile and publicly disclose a comprehensive list of faculty's outside ties. (KM)

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SCHOLARS, INC.

HARVARD ACADEMICS IN SERVICE OF INDUSTRY AND GOVERNMENT

ISSUED BY HARVARD WATCH

NOVEMBER 16, 1988

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HIGHLIGHTS OF "SCHOLARS, INC."

"Scholars, Inc." shows Harvard professors to be more involved in outside work with corporations and government than their peers at any other U.S. university. The report documents that Harvard scholars maintain:

•38 directorships with Fortune 500 companies;

•60 ties to the biotechnology industry;

•over 500 "contacts" between faculty at the Business School and Corporate America;

•over 50 slots on federal advisory committees.

Yet due to the secrecy which surrounds scholars' outside activities, even this information only skims the surface of academics' moonlighting.

Professors and administrators' extensive outside relationships lead to conflicts of commitment. One Law School professor stated that over 10 members of the Law School faculty violate the University's guideline that not more than one day a week should be spent on outside activities.

The broad array of scholars' outside affiliations also may create direct and indirect conflicts of interest. The report provides numerous examples of these conflicts.

While corporations often only seek scholars' technical expertise, they also often engage in self-conscious attempts to coopt academics by employing them as consultants or directors. The report provides examples of this phenomenon as well.

To address the problems of educators' conflicts of interest and commitment, the report calls on Harvard to compile and publicly disclose a comprehensive list of faculty's outside ties.

SUMMARY OF SCHOLARS, INC.

1. Harvard educators moonlight more than their peers at any other university in the U.S. Harvard academics sit on the boards of directors of nearly twice as many Fortune 500 companies as their colleagues at their nearest competitor, MIT.

2. The growth of the biotechnology industry has been accompanied by -- indeed, partially generated by -- an extensive involvement of university biologists in the fledgling industry. At least 60 Harvard scientists maintain a total of at least 65 separate connections to biotechnology companies. This is a total greater than any other university.

The high occurrence of professor-corporate relationships in biotechnology, as elsewhere, potentially yields at least two deleterious consequences. First, the academic enterprise is changed, as research agendas are altered; applied research replaces basic research; and the free flow of university-produced information evaporates, leaving a residue of trade secrets. Second, the permeation of corporate affiliations into the academy severely restricts the pool of professors who can criticize developments in the biotechnology industry without threatening their own monetary interests.

3. Scientists in non-biotechnology related fields are also deeply involved with the corporate world. An extreme example is offered by the case of Frederick Stare, once chair of the Department of Nutrition at Harvard's School of Public Health. Stare testified at Congressional and Food and Drug Administration hearings on behalf of at least half a dozen corporations, and received retainers from at least three of them. Stare did not reveal his corporate connections to the public, whom he advised that "most people could healthily double their sugar intake daily," and told, "[i]s there any reason for concern about food chemicals?...The answer is no."

4. Professors at the Harvard Business School are enmeshed in a web of outside connections of greater magnitude than scholars at any other Harvard faculty, and probably than of any other faculty at any university in the country. At least 110 of the Business School's 180 professors maintain a total of at least 500 corporate connections. Individual professors may earn as much as $10,000 a day for their consulting work.

5. Social scientists moonlighting mostly involves work with or for the government. This interaction in itself may dull scholars' critical thinking, rendering them less willing to challenge present policies and offer visionary alternatives. An even greater danger arises from professors and administrators who have multiple outside ties; that is, they may interact with government in their capacity as professors, and simultaneously maintain undisclosed affiliations with private institutions. Professor Martin Feldstein, for example, regularly testifies before Congressional committees, but does not disclose his many corporate directorships.

6. One Law School professor has stated that at least ten members of the Law School faculty violate the School's guideline that professors should spend no more than one day a week on outside activities. With the exception of high profile moonlighting (such as Alan Dershowitz's defense of Claus von Bulow), however, the outside activities of scholars at the Law School are shrouded in secrecy.

7. Society looks to academics as objective social commentators, who arrive at conclusions guided only by their intellect and consciences. Scholars' affiliations with powerful institutions which have their own profit motivated agendas, however, may preclude this possibility.

8. Both a push and a pull draw professors to corporations. While professors desire monetary remuneration, research funding, and a chance to work in the "real world," companies seek to tap their expertise and enlist them in their influential endeavors. This process, described by two commentators sympathetic to industry as "cooption," is the result of a real and conscious policy of corporations, which consistently target the "media of ideas," in the words of an advertising agency memorandum.

9. The aggregate information concerning Harvard scholars' outside activities and the examples of abuse contained in this report demonstrate that three primary problems result from professors and administrators' moonlighting. First, direct conflicts of interest occur when individual scholars' research or teaching is compromised by their connections to outside institutions; that is, when an educator has a material interest in the outcome of his or her research. Second, professors' outside ties may affect their scholarly and political orientations without drastically altering their stands on particular issues; these indirect conflicts of interest are much more pervasive than direct conflicts. Harvard's various policies concerning conflicts of interest do not view these conflicts as conflicts, and are thus utterly unable to deal with them. Third, when educators' outside work prevents them from fulfilling their obligations to the University, their moonlighting creates conflicts of commitment.

10. The report's primary recommendation to combat these conflicts is for the Harvard Administration to require comprehensive public disclosure of professors and administrators' moonlighting. Public disclosure would broaden the University's monitoring process of academics' outside activities and serve as a safeguard against transgressions of University rules. Most importantly, it would allow those who evaluate scholars' work -- colleagues, students, and the public -- to consider the potential influences educators' outside ties may have on their research. All potentially conflictual relationships should not be prohibited, but they should all be revealed so that the public is able to evaluate their impact.

I. INTRODUCTION

The professional inhabitants of universities occupy a special place in U.S. society. Their ability to explain, analyze, and discover complex social and natural phenomena earns them a high degree of respect and prestige. It also leads the public, government, and business to place separate and sometimes conflicting demands on them, some of which also conflict with their obligations to their universities.

An example of the worst possible outcome of this combination of pressures was realized in the case of Dr. Scheffer C. G. Tseng, a former research fellow at the Harvard-affiliated Massachusetts Eye and Ear Infirmary. While at Mass. Eye and Ear, Tseng tested an ointment he had developed, intended to cure a disease known as "dry eye." He administered the drug to hundreds of patients without permission from the Food and Drug Administration, and he tested different versions on patients without informing them of the type of drug they were being given. Furthermore, he failed to publish the results of research which indicated the ointment did not work. The results he did publish boosted the value of the stock of Spectra Pharmaceutical Services, the company which produces the ointment he tested. Tseng was closely tied to Spectra, consulted for the company, and owned stock in it; and his unethical and illegal activities enabled him to earn at least one million dollars.[1]

Leaving aside the particulars of the scandal, the Tseng incident is important in demonstrating the necessity of examining university scholars' interaction with outside institutions and the methods established by universities to monitor and regulate these outside activities.

This report attempts to consider these issues as they relate to Harvard University.

Except for a general guideline that professors should not spend more than one day a week on outside activities, Harvard does not have a University-wide policy on what it calls "extramural activities." Part II of this report details the policies of various faculties for dealing with these extramural activities. It also considers the availability of information concerning scholars' outside activities. Parts III and IV explore professors and administrators' work outside the university -- that is, moonlighting. Parts III and IV present both aggregate information and specific examples, including a more thorough examination of Dr. Tseng's case, and describe a number of questionable and abusive practices associated with moonlighting. Part V analyzes the social role of academics, their relationship to the public, and the interests of outside forces in coopting them. Parts VI and VII make the case for this report's primary recommendation: public disclosure of academics' extramural activities.

II. HARVARD'S RESPONSE TO MOONLIGHTING

A. HARVARD'S ADMINISTRATIVE POLICIES AND PRACTICES CONCERNING SCHOLARS' EXTRAMURAL ACTIVITY

Harvard does not have a University-wide policy on extramural activities. Instead, it allows each faculty to develop its own standards in conformity with two general propositions: first, professors should not devote more than twenty percent of their professional time, or more than one day a week, to outside activities; second, activities which conflict with scholars' academic responsibilities are prohibited.

Criteria regulating moonlighting are weakest at the Law School, where the only addition made to the general University guideline is that "faculty members should not be partners of law firms or be held out as 'of counsel.'" There is no formal reporting requirement or process by which individuals are encouraged to discuss their activities. Instead, the Law School depends "upon individuals being rather rigorous with themselves in applying" the principles.[2] No one has a comprehensive view of the outside activities of law school faculty, and at least one professor has declared that no one has any idea of what the faculty actually does, aside from teaching.[3]

The Faculty of Arts and Sciences has a more detailed policy laid out in its "Policies Relating to Research and Other Professional Activities Within and Outside the University." It establishes a standing Committee on Professional Conduct and divides extramurals into three categories: "activities that are clearly permissible and that may be pursued without consultation" of the committee; "activities that should be discussed with the dean of the faculty or with the chairman of the committee even though no irreconcilable conflict of interest or commitment is likely to be involved;" and "activities that seem likely to present an unacceptable conflict of interest or commitment, and that

must be discussed with the dean of the faculty or with the chairman of the committee."[4]

While the "Policies" statement elaborates the risks extramural activities pose (indeed, it warns of many of the dangers outlined in this report) and calls for professors to consult the dean or the committee chairperson about questionable activities, it is administered informally. The primary aspect of the process is self-administered. That is, professors determine for themselves whether an activity is questionable. Not surprisingly, they tend to determine that their activities are not questionable. Burton Dreben, chair of the Committee on Professional Conduct, said that the number of people who report to him each year varies. "We have flurries -- I'd say ten to fifteen cases of various degrees."[5] Those who do consult Dreben or the dean usually do so in an informal way; they do not present their case to the Committee, which rarely meets. According to Dreben:

> I will only call the committee together when there is a reason, when there is a basic issue that is not clear. [Usually, however,] mostly it is just someone coming and telling me what he has plans to do, and it is quite clear if [I think] there is anything that is not quite appropriate. I have never had any resistance to that.
>
> And I will discuss it with my colleagues, and one or two cases I'll discuss with the dean and with some other people, and [in] a few cases I might discuss it with the president. I do what my instinct tells me to do.
>
> There has never been a question or challenge here. It's a little hard to know what's the penalty -- we've never discussed what is the ultimate power and authority; the assumption is if somebody does something that is injurious or thought inappropriate, I suppose they could be [cited for] grave misconduct. But it has never come to that.[6]

Despite the informality of the process at the Faculty of Arts and Sciences, Dreben asserted that he has a fairly good sense of the type of activities in which professors in the FAS are involved.

The Medical School has a policy statement almost identical to that of the FAS. The one significant difference is the absence of a Burton Dreben-type figure who has even

a general knowledge of the scope and nature of the faculty's extramural activities. Dr. Mary Clark, Assistant Dean for Faculty Affairs at the Medical School, told Harvard Watch that "really and truly I don't have this information [concerning professors' outside activities] to give to you." Moreover, she stated that there is not one person or organization -- such as the dean or the standing committee on conflict of interest -- who has a comprehensive awareness of the extramural activities in which professors are engaged; instead, "the information is diffused."[7]

The Business School utilizes a very different scheme. The standard University guidelines are disseminated in the faculty manual. But at the Business School, academics must annually report their outside activities to the dean, who compiles the information into a comprehensive list, available only for internal circulation at the Business School. While the dean and senior administrators encourage some faculty members to increase their outside activities, there are instances, according to Senior Administrative Dean Ronald Fox, when the dean will tell an individual that his or her activities are too extensive or inappropriate.[8]

The Kennedy School of Government uses a similar screening process. Each faculty member is required to submit a report detailing the nature of his or her outside activities, and the number of days spent on them. Professor and Associate Dean Albert Carnesale argued that this reporting process prevents any abuses of the guidelines; he says that administrators have never had problems with the nature of anyone's activity or the amount of time they spent on it. "Since the individuals know what the policy is and have to report it, I would be very surprised to get a report that said someone consulted for more than the allowed numbers of days."[9] In addition to its private

disclosure process, the Kennedy School has a unique voluntary public disclosure system, in which educators list their outside activities in a research report. Carnesale explained that, beyond expressing annoyance at filling out a form, professors offer no general resistance to the chairperson of the research committee's entreaties to provide an update of their outside activities. He added: "interesting enough, this request comes not from the office of the dean or from me. It comes from the faculty chairman of the School's research committee. So it really is a collegial undertaking, rather than having an air of authoritarianism behind it."[10] As Part IV, Section C of this report points out, not all professors reveal their relevant outside activities; nevertheless, the voluntary disclosure process at the Kennedy School functions fairly effectively as far as it goes, and is certainly superior to the absence of any disclosure process, the condition which prevails in Harvard's other Schools. The *Kennedy School Research Report* provides valuable -- though incomplete -- information for those interested in professors and administrators' outside activities.

B. AVAILABILITY OF INFORMATION

While Harvard is in a unique position to collect information concerning its faculty's moonlighting and to make that information available to the public, it chooses not to do so. But the question remains: is the information available to interested parties? The answer is "no." A 1987 Harvard Watch survey, sent to 452 tenured Harvard professors (including professors at every Harvard Faculty except the Kennedy School, where professors voluntarily disclose their outside activities, and the Divinity School) netted thirty-six responses (they appear in table 1). Seven of the thirty-six who replied indicated that they engaged in outside professional work in the period 1982-1987. A Law School Student Council survey of 1983 received a similarly low response rate. Detailed surveys were sent to all Law School professors; the Council received seven replies (the results of which appear in table 2).

The most reasonable conclusion to draw from these surveys is that the public and the academic community will obtain access to information relating to professors' extramurals only if the University Administration works toward that end.

TABLE 1. RESPONSES TO HARVARD WATCH SURVEY OF SCHOLARS' MOONLIGHTING

Anonymous
Consulting Arrangements: None
Non-Teaching Paid Positions: None

Anonymous, Children's Hospital
Consulting Arrangements: National Institutes of Health site visiting for grant applications, 1969-present; March of Dimes, grant committee, 1973-present; G.D. Searle, one day consulting; Sterling Winthrop, one day consulting; Genetics Institute, one day consulting; Biogen, one day consulting
Non-Teaching Paid Positions: None

Benacerraf Baruj, Pathology, Medical School
Consulting Arrangements: None
Non-Teaching Paid Positions: President of Dana Farber Cancer Institute, affiliate of Harvard, 1980-present

Jon Beckwith, Microbiology and Molecular Genetics, Medical School
Consulting Arrangements: New England Biolabs, Scientific Advisory Board
Non-Teaching Paid Positions: None

Robert Brustein, Loeb Drama Center
Consulting Arrangements: National Endowment for the Arts, Theater Panel
Non-Teaching Paid Positions: Theater Critic, *New Republic*

Hollis Chenery, Harvard Institute for International Development
Consulting Arrangements: World Bank, 1983-86 (total three months), research on two books; Government of Columbia, 1985-86 (2 months), advice on planning; U.S. Agency for International Development, Thailand (3 days)
Non-Teaching Paid Positions: None

Martin Dorf, Pathology, Medical School
Consulting Arrangements: National Institutes of Health, ad hoc study section/site visits; Veterans' Administration, ad hoc grant reviews
Non-Teaching Paid Positions: U.S. Army Reserve, 1969-present

Elwood Henneman, Physiology and Biophysics, Medical School
Consulting Arrangements: None
Non-Teaching Paid Positions: Royalties from publishers

Stanley Hoffman, Government
Consulting Arrangements: Some consulting for the MacArthur Foundation some years ago and the Foundation for Middle East Peace
Non-Teaching Paid Positions: None

David Hubel, Neurobiology, Medical School
Consulting Arrangements: None
Non-Teaching Paid Positions: None

J. P. Huchra, Astronomy
Consulting Arrangements: None
Non-Teaching Paid Positions: Smithsonian Astrophysical Observatory (staff member), receives salary from SAO, not Harvard

Herbert Kelman, Psychology and Center for International Affairs
Consulting Arrangements: None
Non-Teaching Paid Positions: None

Herbert Levi, Museum of Comparative Zoology and Organismic and Evolutionary Biology
Consulting Arrangements: One pharmaceutical company ($1000), income plowed back and used for research support only
Non-Teaching Paid Positions: None

Neil Levine, Fine Arts
Consulting Arrangements: None
Non-Teaching Paid Positions: None

Karel Liem, Museum of Comparative Zoology, Ichthyology
Consulting Arrangements: None
Non-Teaching Paid Positions: None

Samuel E. Lux, Pediatrics, Medical School
Consulting Arrangements: None
Non-Teaching Paid Positions: None

Morris J. Karnovsky, Pathology, Medical School
Consulting Arrangements: None
Non-Teaching Paid Positions: None

Francisco Marquez, Romance Languages and Literatures
Consulting Arrangements: National Endowment for the Humanities, 1985; WGBH, advisor for the Columbus television series, 1985-87
Non-Teaching Paid Positions: None

Harry S. Martin, Law School
Consulting Arrangements: Served on Law School Inspector Teams for ABA/AALS accrediting agencies; may be expert in upcoming law suit
Non-Teaching Paid Positions: None

Eric S. Maskin, Economics
Consulting Arrangements: None
Non-Teaching Paid Positions: None

Noel McGinn, Administration, Planning & Social Policy, Graduate School of Education
Consulting Arrangements: USAID, educational planning, 1984-present
Non-Teaching Paid Positions: None

Sally Falk Moore, Anthropology
Consulting Arrangements: None
Non-Teaching Paid Positions: None

Elizabeth O'Hay, Anatomy and Cellular Biology
Consulting Arrangements: National Advisory Council, General Medical Sciences, National Institutes of Health, 1978-82; Board of Scientific Counselors, National Institute of Dental Research, National Insitutes of Health (1983-86); these boards met 2-3 times a year
Non-Teaching Paid Positions: None

Susan Pharr, Government
Having just joined the faculty and not having begun teaching full-time, she felt filling out the survey would not shed light on the subject of Harvard professors' outside activities

Francis Pipkin, Physics
Consulting Arrangements: Policy Advisory Committee, Fermi National Accelerator Laboratory, 1985-present; National Research Council Committee in Atomic and Molecular Science, 1981-85; Subpanel of Berkman Committee to prepare a report on the status of atomic, molecular, and optical physics, 1982-85
Non-Teaching Paid Positions: None

H. Douglas Price, Government
Consulting Arrangements: Evaluates proposals for the National Endowment for the Humanities and the National Science Foundation
Non-Teaching Paid Positions: None

Elis Ravida, Anatomy, Medical School
Consulting Arrangements: None
Non-Teaching Paid Positions: None

Lew Sargentich, Law School
Consulting Arrangements: None
Non-Teaching Paid Positions: None

Theda Skcopol, Sociology
Consulting Arrangements: None
Non-Teaching Paid Positions: Foreign Advisory Panel, the Study of Power and Democracy in Sweden, 1986-1990, one meeting in 1986 (4 days), one meeting in 1987 (3 days)

P. F. Stevens, Organsimic and Evolutionary Biology
Consulting Arrangements: None
Non-Teaching Paid Positions: None

Karl Strauch, Physics
Consulting Arrangements: None
Non-Teaching Paid Positions: None

J. Tate, Mathematics
Consulting Arrangements: None
Non-Teaching Paid Positions: None

Donald Trautman, Law School
Consulting Arrangements: U. S. Department of State, consultant and chief spokesman for U.S. at Hague Conference on Private International Law, Negotiating Convention of Trusts, 1982-84
Non-Teaching Paid Positions: None

Richard Van Praagh, Pathology and Cardiology, Children's Hospital
Consulting Arrangements: None
Non-Teaching Paid Positions: None

James Vorenberg, Law School
Incomprehensible

Nelson Yuan-sheng Kiang, Otology and Laryngology, Medical School
Consulting Arrangements: NIH Study Section, 1985-present
Non-Teaching Paid Positions: None

Source: Harvard Watch survey, 1987.

TABLE 2. RESULTS OF 1983 LAW SCHOOL COUNCIL SURVEY ON PROFESSORS' OUTSIDE ACTIVITIES

Clare Dalton

Publications: Book review, *Women's Law Journal*, no fee

Office, Directorships, Boards and Committees: Just Around the Corner Theater Co., member, board of directors, 4 hours/month, no earnings

Lectures and Conferences: Yale Law School Forum, speech, 1 day, no earnings; Critical Legal Studies Conference, group leader and participant, 1 weekend, no earnings

Consulting, Representation, or Other Work: Yale and Harvard Universities, brief advice on relations with Department of Health and Human Services, minimal time commitment, no earnings; an Individual, advice with respect to possible suit against university employer, 2 hours, no earnings

Andrew Kaufman

Publications: co-edited casebook on Commercial Transactions; essay on Justice Cardozo for The Encyclopedia of the American Constitution

Office, Directorships, Boards and Committees: chair of the Committee on Professional Ethics of the Massachusetts Bar Assoc.; president of the Section on Professional Responsibility of the Association of American Law Schools; served on ABA Committee on Counsel Responsibility and Liability

Lectures and Conferences: participation in a panel on Professional Responsibility, annual meeting of the Association of American Law Schools

Consulting, Representation, or Other Work: none, except advice to students in clinical practice

Martha Minow

Publications: book reviews for the *Yale Law Journal* and the *Harvard Education Review*

Office, Directorships, Boards and Committees: Board of Trustees of the Judge Baker Guidance Center for psychologically troubled youth; participation on the Working Groups on Early Life and Mental Health, Harvard Program on Health Policy and Research; worked on committee, chaired by Arthur Miller, under the Program on the Legal Professions to advise the ABA Action Commission on cost and delay in the courts

Lectures and Conferences: Conference on the Chronically Ill at Stanford Medical School ($100 honorarium); spoke at a Harvard conference on use of vaired quantative indications to monitor children's health; moderated panels on women's issues at Women on Law and Critical Legal Studies Conferences; spoke to Kennedy School Study Group on Children's Advocacy

Consulting, Representation, or Other Work: consulted for several abortion rights groups; assisted American Civil Liberties Union and the National Education Associations with amicus briefs; helped a foundation evaluate a child advocacy proposal; advised the American Bar Association on foster care

Richard Parker

Publications: "Political Vision in Constitutional Argument," Transcending the Conventions of Constitutional Theory," both works were in progress

Office, Directorships, Boards and Committees: None

Lectures and Conferences: Oberlin College, lecture, 1 day; University of Connecticut, lecture, 3 hours; was paid a fee for both lectures

Consulting, Representation, or Other Work: None

David Shapiro

Publications: article on Publicity in Criminal Cases for the Encyclopedia of Crime and Justice, received honorarium; working on third edition of jointly-authored casebook on the Federal Courts and the Federal System, receives royalties; working on longer-range project to explore the limits of judicial discretion

Office, Directorships, Boards and Committees: Directing Editor of the Editorial Board, University Casebook Series, Foundation Press, receives annual salary; arbitrator in labor arbitration cases, receives per diem; member of the American Law Institute; member of the Association of American Law School Committee on Courts

Lectures and Conferences: None

Consulting, Representation, or Other Work: consults for various practicing lawyers without continuously representing a client, sometimes receives fee

Daniel Tarullo

Tarullo filled out the survey, but remaining copies of his responses are not quit readable. He listed two publications, for one of which he received $1000. He did not hold any directorships. H listed two lectures. He noted two consultantships, one of them for the U.S. Labor Union Policy Ad ice Office.

Source: Law School Student Council survey, 1983.

III. AN OVERVIEW: EDUCATORS IN GOVERNMENT AND ON CORPORATE BOARDS

Most of scholars' paid outside work is done through various forms of consulting arrangements. The existence and nature of these relationships are generally secret, and their scope not easily measured. However, information concerning certain other formal and institutionalized mechanisms by which academics serve the two primary centers of power in the United States, business and government, is publicly accessible. The composition of corporate boards, for those corporations whose stock is publicly held, and of federal governmental advisory committees is legally required to be publicly disclosed. Both sitting on corporate boards and participating in governmental advisory committees offer entanglements to scholars, individually and collectively, as will be discussed below.

These legal disclosure requirements make it possible to compare Harvard educators and their peers affiliated with other universities. Such a comparative analysis reveals that Harvard professors and administrators are far more thoroughly intertwined with business and government than their peers at any other U.S. university.

A. ACADEMICS ON CORPORATE BOARDS

A Harvard Watch survey of 444 of the 500 largest U.S. industrial firms found that academics held 360 directorships among these companies in 1984. The 202 positions held by educators among the largest 200 industrials in 1984 represented an increase of nearly 300% over 1969, when professors and administrators held fifty-one directorships among the country's 200 largest industrial firms.[11]

Educators from Harvard University sit on the boards of companies ranging from Raytheon to General Electric to Quaker Oats. In 1984, Harvard scholars held nearly twice as many directorships on the Fortune 500 as their colleagues at MIT (who, with twenty-three directorships, had the second most slots on boards of the Fortune 500) and four times as many as those at Stanford (the next nearest competitor, Stanford academics filled thirteen of the Fortune 500 directorships). A list of Harvard professors serving on the boards of the Fortune 500 in 1987-88, their stockholdings and director salaries appears in Table 3 (particular cases where these positions most clearly create direct conflicts of interest will be discussed in part IV of this report).

For the University, these directorships have consequences besides those leading to direct conflicts of interest. Edward Herman, Professor of Business at the Wharton School of the University of Pennsylvania, in *Corporate Control, Corporate Power*, reported a consensus "among sophisticated observers that...managements want boards to carry out certain limited functions, [including] solidifying relationships with important external constituencies."[12] Academics sitting on corporate boards are not exceptional in this respect;* their presence works to solidify the increasing connections

*Academics may differ from other directors in other ways, however. Corporations place educators on their boards for a panoply of reasons, including: academics' expertise in management or a firm's particular field (for example,

between universities and industry.

Academic representation on corporate boards provides corporations with access to universities and facilitates additional linkages between the two institutions. The relationship between increasing individual ties (e.g., a professor serving on a corporate board) and institutional ties (e.g., a research agreement between a university and a corporation) is dynamic and expansive. Academic board members, however, play a somewhat different role than business people in enhancing institutional relationships. Educators are less likely to seal particular relationships in the way that the presence of an investment banker on an industrial firm's board may cement relations between the bank and the company. Rather, scholar-directors are likely to nurture the relationship between a corporation and the broader academic world.

In a manner more far-reaching than business executives with their customary trade secrecy, educators can reach out to their whole world. A chemistry professor at an elite university can be more familiar with other leading chemistry departments than a banker can be with other banks; academia functions as a relatively harmonious and cohesive community that the business world cannot match because of its size and competitive nature. As a past chancellor of the University of California at Los Angeles once stated about his value to a corporation on whose board he served: "Frankly, I am able to make a contribution -- I know people who are running universities or research institutions in different parts of the world, out of my own set of responsibilities, and I can be of practical value."[13]

This "practical value" is of no small interest to corporations. Business needs a way

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chemistry); scholars' participation in the social networks from which directors are chosen; and corporate attempts to increase minority, women, and, to a lesser extent, "public interest" directors.

to develop channels that will lead both to research agreements and to favorable support for its political agenda. One way for a corporation to develop these channels is to invite eminent scholars, particularly ones from a prestigious university such as Harvard, to sit on its board. From the University or public perspective, though, these channels should be cause for concern. Their existence provides companies with a special sort of access to, and influence in, academia.

The proliferation of scholar-board members creates problems at the individual level as well. An academic contributing to the welfare of a corporation adheres to a set of values that are very different from those of the University. While in the boardroom he or she values profit-making and secrecy; in the lab or library, the educator attaches value to the public interest, openness, and the free dissemination of information. This fundamental contradiction also characterizes much professorial consulting, but it is particularly acute with respect to corporate directorships, because directors have much deeper ties with the companies on whose boards they sit; *de jure*, they actually are obligated to promote the best interests of these companies.

As Part IV of this report shows, these competing demands on professors may lead them to significantly alter their research, violate University rules, and misuse Harvard resources. More often and less overtly, the competing demands may cause scholars to soften their critical attitudes and to become remiss in fulfilling their responsibilities to the University.

TABLE 3. FORTUNE 500 EDUCATORS

Name/ Company	Harvard Affiliation	annual compensation	compensation per board meeting	compensation per committee meeting	number of shares of stock owned
F. Aguilar Bowater	Business School	$18,000	$ 600	$ 600	331
R. Anthony Warnaco	Business School	12,500	600	500	5400
K. Austen Abbott	Medical School	21,966	1200	1000	200
H. Brooks Raytheon	Kennedy School	14,000	1000	1000	800
M. Brown Bard Collins and Aikman	Business School	15,500 12,000	600 800	600 400	300 664
R. Buzzell VF	Business School	16,500	700	700	800
C. R. Christensen Cabot	Business School	9,000	500	500	11,400
E. Corey Norton	Business School	18,000	800	800	500
M. Crum Ex-Cell-O	Business School	14,000	700	700	400
M. Feldstein TRW	Economics	19,000	950		200
Y. Feng Polaroid	Library system	16,000	750		310

L. Fouraker	Kennedy School				
General Electric		27,000	1200	1200	400
Gilette		15,000	500	500	1000
S. Fuller	Business School				
Owens-Illinois		20,000	800	800	
R. Hayes	Business School				
Perkin-Elmer		27,500			200
M. Horner	Radcliffe				
Time		38,000	2000	1000	693
D. Hornig	Schl of Public Health				
Upjohn		18,000	1000	1000	400
Westinghouse		23,000	1000		280
W. Knowlton	Kennedy School				
Bethlehem Steel		19,745	360		200
T. Levitt	Business School				
AM International		20,000	750		60,276
W. Lipscomb	Chemistry				
Dow Chemical		20,000	750	750	1000
J. Lorsch	Business School				
Brunswick		25,000	1000		436
R. MacDougall	Treasurer				
EG & G		12,000	500	2500 (annual)	5600
J. Matthews	Business School				
Ampco Pittsburgh			1000	250	100
J. McArthur	Business School				
Rohm & Haas		12,000	650	650	600
R. Rosenbloom	Business School				
Gen'l Instruments		16,000	750		200

H. Rosovksy Corning	Economics	19,000	600	600	1080
W. Salmon Quaker Oats	Business School	25,000	1000/day		4913
W. Skinner Scientific Atlanta	Business School				
R. Stobaugh Ashland Oil	Business School	24,000	1000		1000
H Uyterhoeven General Cinema Stanley Works	Business School	6,000 12.000	1500 850	500	600 450
P. Vatter Firestone Moore McCormack	Business School	20,000 14,000	750 650		1700 1000
G. Whitesides Dexter Directions	Chemistry				
C. Williams Hammermill Paper	Business School	16,000	1000	500	300
A. Zaleznik Ogden	Business School	9,000	1500		150

Source: Corporate Annual Reports, 1986, 1987, 1988.

B. SCHOLARS ON GOVERNMENTAL ADVISORY COMMITTEES

In the early 1970s, the Senate Committee on Governmental Operations published a list, organized by individuals' institutional affiliations, of all people who served on federal advisory boards. This list is no longer published. Data from 1972 revealed that more academics from Harvard than from any other university campus served on these committees.[14] An incomplete list of Harvard-affiliated members of federal advisory committees, based on separate Harvard Watch Freedom of Information Act requests to all governmental administrative bodies which use advisory boards, appears in table 4. It shows that at least fifty Harvard professors participated on federal advisory boards in 1987-8.*

Certainly this kind of activity -- in which scholars make their expertise available to the public -- should not be discouraged. Nonetheless, it presents two potential hazards. First, professors on these committees may also have other, undisclosed affiliations. In these cases, some of which are discussed in part IV of this report, scholars' University-affiliations may mask their connections to powerful firms that have an interest in the outcome of government policy. The second hazard, more subtle, was eloquently described by Harvard University President Derek Bok in his book *Beyond the Ivory Tower*:

> Scholars who consult extensively in Washington will also develop subtle dependencies on their government patrons. Like most human beings, faculty members enjoy the excitement, the prestige, the variety that come with opportunities to participate in the shaping of the nation's policies. As they grow

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*Although governmental terminology does not always adhere to it, a distinction should be made between genuine advisory committees and peer review committees. Advisory committees actually provide advice to government departments. Peer review committees simply evaluate scholarly proposals for research funding; this is a normal part of many, if not most, academics' activities, and scholars often consider it obligatory. The panelists for the National Endowment for the Arts, the National Endowment for the Humanities, and at least some of the members of the National Science Foundation committees listed in table 4 are actually on peer review committees.

accustomed to this way of life, they may grow less inclined to dissent from official policies or to advocate positions that might jeopardize their influence or offend their patrons. Slowly, imperceptibly, without even noting the changes taking place, they may become more "pragmatic," "realistic," and "sound" in their judgments of human affairs. Unfortunately, they may also grow cautious, conventional, and less able to take a detached and critical view of the events and policies in which they become enmeshed.[15]

This portrayal by Bok is particularly important because it delineates the systemic, conservatizing influences which may operate not only on those with connections to government, but those with ties to industry as well.

TABLE 4. HARVARD SCHOLARS ON FEDERAL ADVISORY COMMITTEES

Administrative Conference of the United States
Clark Byse, senior fellow, committee on administration
Richard B. Stewart, consultant

Department of Agriculture
Lawrence Bogorad, Policy Advisory Committee for the Science and Education Research Grants Program

Department of Commerce
Timothy Bresnahan, Census Advisory Committee of the American Economic Association
Michael Stoto, Census Advisory Committee of the American Statistical Association
Norman Ramsey, National Bureau of Standards Visiting Committee

Department of Defense
Thomas Cheatham, Air Force Scientific Advisory Board
Paul Horowitz, Jason Group consultant[1,2]
John Kotter, Army Science Board[1,3]
David R. Nelson, Jason Group consultant[1,2]
Wily Piessens, Naval Research Advisory Committee
William Press, Defense Science Board; Jason Group consultant[1,2]

Department of Education
Glenn C. Loury, National Board of the Fund for the Improvement of Postsecondary Education

Department of Energy
James R. Rice, Basic Energy Sciences Advisory Committee

Environmental Protection Agency
Ralph Mitchell, Biotechnology Science Advisory Committee
James Ware, Clean Air Scientific Advisory Committee

Federal Emergency Management Agency
Samuel Huntington, FEMA Advisory Board

National Endowment for the Arts
Edgar Peters Bowron, Panelist

National Endowment for the Humanities
Bernard Bailyn, Panelist
John Clive, Panelist
Margaretta Fulton, Panelist
Nathan Glazer, Panelist

National Endowment for the Humanities (continued)
Victoria Harding Swerdlow, Panelist
Tamara Harven, Panelist
Sally Hastings, Panelist

Ann Lane, Panelist
Drew McCoy, Panelist
Stephan Thernstrom, Panelist
Stephen Williams, Panelist
Anne Wortham, Panelist

National Science Foundation

James Alt, Political Science Advisory Panel
Margaret Geller, Advisory Committee for Astronomical Sciences
Patricia Graham, Advisory Committee for Science and Engineering Education
Gerald Holton, Advisory Committee for Science and Engineering Education
Matina Horner, National Science Foundation Advisory Council
Lawrence Bogorad, Advisory Committee for Biological, Behavioral, and Social Sciences
Farish Jenkins, Advisory Panel for Biological Facilties Centers
Jennifer Logan, Advisory Committee for Atmospheric Sciences
Paul C. Martin, Advisory Committee for Materials Research
Frederick Mosteller, Advisory Committee for Biological, Behavioral, and Social Sciences
Richard J. O'Connell, Earth Sciences Proposal Review Panel
James Rice, Advisory Committee for Division of Mechanics, Structures, and Materials Engineering
Allan Robinson, Program Advisory Panel for Divisions of Advanced Scientific Computing and Networking and Communications Research and Infrastructure
Donald Rubin, Advisory Panel for Measurement Methods and Data Improvement
Margaret Ann Shupnik, Cell Physiology Panel
Temple Smith, Advisory Panel for Biological Facilities Centers
C. Richard Taylor, Regulatory Biology Panel
Joan Van-Der Ruderman, Developmental Biology Panel
Donald Warwick, Advisory Panel for Ethics and Value Studies
Thomas H. Wilson, Panelist for Metabolic Biology Program

Nuclear Regulatory Commission

Dade W. Moeller, Advisory Committee on Reactor Safeguards
Leonard Holman, Advisory Committee on Medical Uses of Isotopes
Edward Webster, Advisory Committee on Medical Uses of Isotopes

United States Information Agency

Clemency Chase Coggins, Cultural Property Advisory Committee
John J. Collins, Medical Science Advisory Committee

Table Notes

1. From Charles Schwartz Freedom of Information Act request, personal communication, September 9, 1988.

2. Consultant to the Jason Group as of June, 1987. The Jason Group, an elite collection of scientists who provide top level consulting to the Department of Defense, is not technically an advisory committee.

3. Membership verified only to 1984.

Source: Federal Agency Responses to Harvard Watch Freedom of Information Act Requests, 1987. (Not all agencies replied, and the list is not complete).

IV. MOONLIGHTING AT HARVARD AND ITS CONSEQUENCES

In addition to creating conflicts of commitment, in which educators fail to fulfill their obligations to their universities, moonlighting negatively influences professors' teaching and research in two ways: first, professors' outside ties may affect their scholarly and political orientations without drastically altering their stand on any particular issue; second, some professorial and administrative connections outside the university may produce direct conflicts of interest.

Indirect conflicts of interest are less blatant and more common than direct conflicts; nonetheless, they may very much limit the type of social commentary scholars produce. Academics may not have personal monetary interests in a given issue, but their association with an actor in a social controversy still may prevent them from confronting an issue as disinterested observers able to offer "objective" analysis. In the quotation cited in part III, Bok described this dynamic with respect to scholarly involvement with the federal government. As individuals acquire a personal financial stake in and personal allegiance to continuing interaction with business through consulting arrangements, they become less likely "to take a detached and critical view" of their objects of study, and less likely still as they acquire the obligations and responsibilities of corporate directorships.

A second type of conflict of interest occurs when an academic has a direct interest in the subject about which he or she writes and teaches. Presentation of this information is necessarily limited to anecdotes because of the secrecy which surrounds professors' extramurals and the obvious self-interest of educators in not revealing instances in which their integrity is compromised. Still, a number of documented conflicts of interest have arisen at Harvard in the last twenty years, and there is no reason to believe the

actual number of cases is not substantially larger.

A. THE SCIENCES

1. Biotechnology

While extensive university-corporate relationships have developed in scientific fields that blossomed before biotechnology -- such as chemistry, computer sciences, and microelectronics -- biotechnology has drawn universities and industry closer together than they have been since World War II. The field's leading practitioners are located almost entirely in academia rather than in industry for several reasons, including biotechnology's blurring of any previously existing distinctions between applied and basic research. Consequently, and despite the rapid development and growth of industrial laboratories, the burgeoning industry has remained dependent on the university experts who continue to operate at the field's cutting edge.

Harvard and its professors, like universities and academic scientists across the country, have established many different types of relationships with the biotechnology industry. At the institutional level, these include: long-term corporate sponsored research agreements in which a company may provide millions of dollars over several years to a large laboratory; short term sponsorship agreements in which a company sponsors a specific project or line of research; and exclusive licensing arrangements between the University and industry for Harvard-owned patents [see Harvard Watch's "The New Classified Research" for a critique of these institutional relationships and their consequences at Harvard]. At the individual level, Harvard professors consult for biotechnology companies, serve on corporate scientific advisory boards, sit on firms' boards of directors (and have occasionally held managerial positions), and own substantial equity in start-up biotechnology firms.

Because of the important roles individual professors have in many biotechnology companies, information about many of these professors' corporate connections is in the public domain.* Much similar information, however, is not available to the public. Connections between professors and the large companies -- such as chemical, petrochemical, food and beverage, and pharmaceutical multinationals -- which are increasingly involved in biotechnology are not disclosed because a professor's involvement with one these major corporations is not held to be of material interest to investors. Additionally, relationships between professors and smaller, privately held companies remain secret because privately owned companies are not subject to disclosure regulations.

Operating within these constraints, a forthcoming study from Tufts University, conducted under the direction of Professors Sheldon Krimsky and James Ennis, establishes the existence of significant ties between over 800 scientists and biotechnology companies.**[16] Given the Tufts study's constraints, this number undoubtedly substantially understates the quantitative magnitude of professorial-corporate ties in biotechnology.

The study shows that sixty Harvard professors, with sixty-five separate connections, have more ties to biotechnology companies than professors at any other university. These professors and their corporate affiliations are listed in table 5. These

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*Information relevant to investors must be included in the prospectuses which are published when a company places stock in itself on the market. In small biotechnology companies, this information includes scientists serving on scientific advisory boards or holding important consulting positions.

**"significant" is defined as formal, long term ties between a scientist and a biotechnology company. A scientist fulfills this criterion by maintaining at least one of the following relationships with a biotechnology company: serving on a firm's scientific advisory board, holding a long term consultantship with a company, holding substantial equity in a company, or serving in a managerial capacity for a firm (including serving on its board of directors).

documented ties certainly do not present a complete portrait of professors' connections to the biotechnology industry. In 1981, University Professor Walter Gilbert estimated that "one half of my colleagues at Harvard are involved in companies in one form or another."[17] Another professor told Harvard Watch that most people in biology and biology-related departments "wear two hats," and asserted that the majority of people in these departments are part owners of, or consultants to, biotechnology companies.[18]

The significance of the pervasive nature of scientists' corporate connections at Harvard and across the nation is compounded by the high participation rate of scientists who are members of prestigious scientific associations and influential panels and boards. At Harvard, thirteen of the sixty scientists with ties to corporations are members of the National Academy of Sciences; the Tufts study demonstrates this is part of a larger national phenomenon. Similarly, the study shows that academics with ties to biotechnology firms are widely represented on governmental peer review boards and governmental advisory committees dealing with the regulation of genetic engineering.

As the study points out, at least two deleterious consequences flow from the high occurrence of professor-corporate relationships. First, it severely restricts the pool of professors who can criticize developments in the biotechnology industry without threatening their own special interests. For example, the recent patenting of a mouse breed by Harvard University and Professor Philip Leder has intensified widespread condemnation of the idea of patenting animal life forms. Religious leaders and ethicists, farm organizations, and environmental groups have labeled the patenting outrageous; the Congress is considering a temporary ban on further patenting of

animal life forms.[18] Why aren't scientists, and especially Harvard professors, joining this coalition and criticizing the mouse patent? A refusal to provide patents on animal life forms would not restrict scientists' ability to engage in research, so "academic freedom" is not a justification for scientists' quiescence. A plausible explanation is that their corporate ties are restricting their willingness to criticize developments from which they may profit or otherwise benefit.

Second, the permeation of corporate affiliations into the academy may change the nature of the academic enterprise. Scientists' agendas may be set by corporate sponsors; fundamental research may be displaced by research with more obvious applications; the free flow of information in biology departments may evaporate as scientists are forced to guard trade secrets -- which may include essential aspects of their own research; in rare instances, scientific results may be distorted, by alteration or omission, to satisfy corporate wants.

In October 1988, *The Boston Globe* reported that Dr. Scheffer C. G. Tseng administered a Vitamin A ointment which was supposed to cure a disease, known commonly as "dry eye," to at least 250 patients.[19] Tseng administered the newly developed ointment over a two year period, 1984-86, while he was a research fellow at the Harvard-affiliated Massachusetts Eye and Ear Infirmary. Tseng originally received permission from the federal Food and Drug Administration to treat twenty-five to fifty patients with the new drug; when this authorization ran out, he illegally tested the drug on at least 223 other patients. The *Boston Globe* "found that when Tseng wanted to give patients a drug that had not been approved for human experimental use, he gave it. When nurses objected, he gave it anyway, but told a patient to keep it secret."

After he had tested the drug on an initial group of twenty-two patients, Tseng proclaimed its success at a Washington press briefing, and later in a published article. By mid-1985, however, further testing had not provided data to support Tseng's original claims, although it is not clear if Tseng had evaluated his evidence at this time. Despite this, Tseng, along with his mentor at Johns Hopkins University, Edward Maumenee, and his supervisor at Mass. Eye and Ear, A. Edward Kenyon, planned a stock offering in a startup biomedical company which was to be built around Tseng's ointment. Maumenee, an eminent scientist, was the key player in putting the company together, yet he only casually asked Tseng how his research was proceeding. "He said he was getting good results," Maumenee later told the *Globe*. Stock in the company, Spectra Pharmaceutical Services, went on sale in January 1986. While putting up three percent of the capital generated by the stock sale, Spectra insiders, including Maumenee, Kenyon, and Tseng, received three quarters of the stock in the new company. At the time of the stock offering, Tseng's stock was worth $3.4 million; his supervisor's stock was worth $340,000. According to the *Globe* , Tseng and his relatives made at least $1 million when they sold the stock later that year.

Tseng published four papers in medical journals between 1985 and 1987 on his ointment, but all were based on his original study of twenty-two patients. The evidence accrued from his illegal application of the treatment to over two hundred other patients was not published. When he found the drug not to be working, Tseng "changed doses of the drug, the placebo against which it was being tested and even the test themselves without notifying the hospital committee responsible for overseeing his work." Furthermore, Tseng administered different versions of the ointment to patients without

telling them what they were being treated with, in gross violation of medical ethics and University rules. Evidence of the failure of the ointment would have hurt the value of Spectra's stock, as it eventually did when the poor testing record of the drug gradually leaked out; and so Tseng had a significant financial interest in not disclosing the results of his tests. Tseng's supervisor, Kenyon, also had a personal financial interest in the success of the ointment, and was either incredibly lax in his oversight or simply ignored the many abuses of University policy and federal regulations committed by Tseng.

Internal Harvard University investigations have determined that Tseng was guilty of a serious violation of conflict of interest rules. The University's conclusions were not publicized, however, nor even distributed to the other institutions implicated or involved in the Tseng scandal. Neither Johns Hopkins University, where Maumenee remains affiliated and where Tseng's research began, nor the University of Miami, where Tseng is now an associate professor, were notified by Harvard. Additionally no governmental agency was aware of Tseng's abuses.[20] Currently, two Congressional committees, the Massachusetts securities division of the Secretary of State's office, and the Boston office of the Securities and Exchange Commission are beginning investigations of Tseng's activities.[21]

The case of Myron Essex, of the School of Public Health, provides another example, less extreme, of the distortions which corporate affiliations may introduce into the academy. Essex recently garnered national media attention for his patenting of GP120, a drug expected to help diagnose AIDS. Upon receiving a patent, Harvard immediately granted exclusive license for the manufacture of the drug to the Cambridge Bioscience Company. The ties between Cambridge Bioscience and Essex are far-reaching and

multi-faceted: the company sponsors Essex's research at Harvard; Essex serves on Cambridge Bioscience's scientific advisory board; and he owns substantial equity in the company.[22] Involved in a set of relationships like Essex's, a professor at best has dual loyalties; it is more proper to say Essex works for both Harvard and Cambridge Bioscience (or that he works for Cambridge Bioscience and teaches for Harvard on the side) than to say he is a professor who works for Cambridge Bioscience on the side. The interests of a university and a for-profit corporation are not identical, however, and Essex's dual loyalties raise questions about his conduct. For example, Professor Martin Kenney of Ohio State University questioned whether Essex withheld (or at least timed) publication of earlier findings to benefit Cambridge Bioscience: "The research for which Essex is funded [by Cambridge Bioscience] yielded two articles in *Science* in 1983, the first of which coincidentally was published one month before the stock [of Cambridge Bioscience] was issued."[23]

University Professor and Nobel laureate Walter Gilbert's work and career have also been affected significantly by the introduction of the profit-motive into academic research. In 1982, Gilbert left Harvard to work as chief executive officer of one of the first biotechnology firms, Biogen. To Harvard's credit, it refused to allow the Nobel laureate to remain both a professor and a chief executive officer, and it forced Gilbert to resign his Harvard position. Gilbert's management talents did not match his scientific ones, however, and, forced out of Biogen, he returned to the University in 1986.

Gilbert has recently proposed to establish a company named Genome Corporation, which would attempt to map every gene in the human body. Genome Corp. would then enter the newly acquired information into a database which it would make available to

interested scientists who were willing to pay for the information. While Gilbert will be able to charge users of his information, he will not be able to prevent other scientists from developing the same data on their own.[24] Nevertheless, serious ethical and political questions remain about the propriety of an individual or a company profiting from the sale of knowledge which, in normal academic practice, would be freely transferred in the scholarly community. Gilbert seems to have no such concerns. He told an interviewer:

> Copyright has nothing to do with access; it has to do with whether you can make a copy and sell the knowledge. Your interest as a user is access, and you want access at a reasonable price...You can go and buy information from it [the copyrighted database], but you just can't go and copy the information. That's a different notion from the protection that's involved in patenting. When you patent a process, you publish it, so the information is totally public, but others can't use it without permission.[25]

As his own analysis indicates, Gilbert is wrong; copyright has everything to do with access. Interested users are denied access to information unless they are willing and able to pay a price. Since the information Gilbert wants to copyright is of interest to both academic and industrial scientists, his plans for Genome Corp. have the potential to dramatically alter the way university science is performed. Tufts' Krimsky has called Gilbert's plan "very unorthodox," and has pointed to the societal harms stemming from one person exerting proprietary control of information that has the potential to play a significant role in combatting disease. The enactment of Gilbert's proposal, Krimsky claimed, would constitute "a real violation of the fundamental norms of science," and would set a very bad precedent.[26]

Additionally, Gilbert has not escaped criticism for his conduct within the University. His laboratory and those of other professors with commercial interests have been

called assembly lines. One Harvard Medical School professor interviewed by Harvard Watch charged that students, particularly in Gilbert's lab, have been put on research projects that were more company-oriented than relevant to the students' doctoral work.[27] Graduate students, highly dependent on their advisors, may be affected detrimentally by professors' corporate ties in other respects as well. Professors overburdened by their dual affiliation with the University and a biotechnology firm may not devote adequate attention to graduate students. Even more seriously, professors closely linked to particular companies may guide and pressure graduate students to work for companies with which they are connected.

TABLE 5. HARVARD ACADEMICS' TIES TO BIOTECHNOLOGY COMPANIES, 1982-87[1,2]

Professor's Name	Company Name	Company Position
Anonymous[3]	Advance Biofactures	Member, Scientific Advisory Board (SAB)
Anonymous	Applied Biotechnology	Member, SAB
Anonymous	Applied Biotechnology	Member, SAB
Anonymous	Applied Biotechnology	Member, SAB
Anonymous	Applied Biotechnology	Member, SAB
Anonymous	Immunogen	Member, SAB
Frederick Ausbel	Biotechnica International	Senior Research Consultant
K. Frank Austen	Abbott Laboratories	Director
Jonathan Beckwith	New England Biolabs	Member, SAB
Irvin Blank	Moleculon	Member, SAB
Konrad Block	Biotechnica International	Senior Research Consultant
Konrad Block	Sci/Med Advances	Member, Scientific Advisory Group
Lawrence Bogorad	Advanced Genetic Sciences	Member, SAB
Michael Brenner	T Cell Sciences	Consultant in Basic T Cell Research
Martin Carey	California Biotechnology	Member, SAB
John David	New England Biolabs	Member, SAB
Myron Essex	Cambridge Bioscience	Member, SAB
Raymond Erikson	Bioassay Systems	Member, SAB
Raymond Erikson	Oncogene Science	Member, SAB
Bernard Fields	Cambridge Bioscience	Member, SAB
Jeffrey Flier	California Biotechnology	Principal Collaborator
Emil Frei III	Liposome	Member, Cancer SAB
Walter Gilbert	Biogen	Member, Supervisory Board
Irving Goldberg	Viratek	Member, SAB
Donald Goldman	Bioassay Systems	Consultant
Howard Green	Damon Biotech	Member, SAB
Mark Greene	Cambridge Bioscience	Member, SAB
Jerome Gross	Collagen	Member, SAB
James Gusella	Integrated Genetics	Member, SAB
Darrow Edward Haagensen	Viragen	Member, SAB
Edward Hager	Immungenetics	Chair, Board of Directors
William Haseltine	Cambridge Bioscience	Director
Martin Hemler	T Cell Sciences	Consultant in Basic T Cell Rsch
Alice S. Huang	Biotech Research Labs	Member, SAB
Kurt Isselbacher	DNAX	Member, SAB
Fotis Kafatos	Biohellas AE (Greece)	Member, SAB
Nancy Kleckner	New England Biolabs	Member, SAB
Jeremy Knowles	Biogen	Consultant
Walter Koltun	SPI Pharmaceuticals	Chair, SAB
Henry Kronenberg	Integrated Genetics	Consultant

Robert Langer	An-Con Genetics	Consultant
Robert Langer	Moleculon	Member, SAB
Richard Losick	Biotechnica International	Senior Research Consultant
Sarabelle Madoff	Bioassay Systems	Consultant
Thomas Maniatis	Genetics Institute	Founder
James Mullins	Cambridge Bioscience	Scientific Associate
Arthur Neufeld	Liposome	Member, Opthamological SAB
Janice Pero	Biotechnica International	Senior Scientist
John T. Potts, Jr.	Genentech	Director
Mark Ptashne	Genetics Institute	Member, SAB
Bryan Roberts	Applied Biotechnology	Founder
Thomas Roberts	Biotechnica	Director
Calvin Satlava	An-Con Genetics	Director
Joel Schwartz	Biogenics	Member, SAB
Jonathan Seidman	T Cell Sciences	Consultant in Basic T Cell Rsch
Gerald Shklar	Biogenics	Member, SAB
Thomas Smith	SPI Pharmaceuticals	Member, SAB
Jack Strominger	Cytogen	Member, SAB
Jack Strominger	Genex	Member, SAB
Jack Strominger	T Cell Sciences	Consultant in Basic T Cell Rsch
Cornelius Terhorst	T Cell Sciences	Consultant in Basic T Cell Rsch
Kenneth Thimann	Plant Genetics	Member, SAB
Thomas Thornkill	International Genetic Engineering	Member, SAB
Janet Westpheling	Biotechnica International	Member, SAB

Table Notes

1. While no information which is known to be outdated is included on this table, some of the corporate affiliations listed may no longer exist. Many of the documents from which the information was culled (particularly prospectuses) are only occasionally issued, and it is therefore not possible, in many cases, to obtain current information from publicly accessible documents.

2. Professors with ties to biotechnology companies whose primary professional affiliations are with Harvard-affiliated hospitals do not appear on this list. Nevertheless, many who do appear may have relations with both the University and its affiliates.

3. "Anonymous" professors appear in cases when a biotechnology company replied to a survey or telephone call by indicating the university affiliations of professors associated with the company, but refused to indicate the professors name.

Source: Forthcoming Tufts Study under the direction of Professor Sheldon Krimsky, Department of Urban and Environmental Policy, and Professor James G. Ennis, Department of Sociology, Tufts University, Medford, MA 02155. The Tufts study relies on corporate annual reports, proxy statements, and prospectuses, as well as a survey mailed to biotechnology firms and follow-up telephone calls.

2. Non-Biotechnology Related Sciences

As mentioned above, biotechnology has not been novel in fostering ties between academic scientists and industry. Many other university laboratories, such as those in chemistry departments, have also maintained close links with corporations. Because most university scientists who consult do so with large companies and their consulting is not deemed of material interest to investors, information detailing their consultantships is not publicly available. Some scientists, catalogued in *American Men and Women of Science*, include their consulting work in their published biographical summaries. Table 6 presents a partial list of Harvard scientists in non-biotechnology related fields who engage in corporate consulting and those who sit on corporate boards.

Because scientists often influence public policy-making, these ties, like those in biotechnology, can lead to conflicts of interest. In 1975, the late Congressman Benjamin Rosenthal and the Washington-based Center for Science in the Public Interest released a study, "Feeding at the Company Trough," which documented widespread cooptation of nutrition and food science professors by the food industry. The report singled out the Department of Nutrition at Harvard's School of Public Health, charging that the Department was "riddled with corporate influence."[28] The report sharply criticized Dr. Frederick Stare, then the chair of the department. It stated that Stare was on the board of Continental Can Co., a major food packaging firm, and that he had testified at Congressional and FDA hearings on behalf of Kellogg, Nabisco, Carnation Milk, the Cereal Institute, the Sugar Association, and the Pharmaceutical Manufacturers Association. He received retainers at least from Kellogg, Nabisco, and the Cereal Institute.[29] Stare did not reveal these ties, however, to those most affected

by them -- the public, and public decision-makers:

> Although Stare's widely syndicated newspaper column notes his Harvard affiliation, it makes no mention of his food industry connections. His columns and articles in defense of sugar and food additives have neglected to disclose his intimate ties to the sugar and chemical industries. Women's Wear Daily, for example, interviewed Stare who declared that "most people could healthily double their sugar intake daily." His advice contradicts one of the few accepted nutritional principles, namely, that Americans eat far too much sugar. In a recent column, Stare tried to dispel the food additive controversy. "Is there any reason for concern about food chemicals?...The answer is no."
> ...When asked whether his corporate ties cast a shadow on his pronouncements, Stare maintained, "I really honestly feel I have not reduced my credibility."[30]

In 1969, then Dean of Harvard Medical School, Robert Ebert, became a director of Squibb Beach-Nut, Inc. In response to medical students' arguments that he could not "fill his role as protector of the medical consumers' rights as long as he also has a responsibility to a commercial drug company,"[31] Ebert resigned his directorship. In 1972, however, he appeared before a Federal Drug Administration advisory panel and argued for the safety of a drug manufactured by Squibb, against the recommendations of a National Academy of Sciences-National Research Council report. The FDA panel unanimously voted against Ebert's position, with one panelist saying "the dean's data were marginal at best." Shortly afterwards, a *Washington Post* reporter revealed that Ebert was acting as a paid consultant to Squibb.[32]

Donald Hornig, the director of the Harvard Interdisciplinary Programs in Health, currently sits on the board of directors of Upjohn and Westinghouse, positions for which he receives over $50,000 a year (see table 3). Hornig told Harvard Watch that it was rather obvious why these two corporations wanted him on their boards. "I am broadly acquainted with the public policy considerations as well as the scientific and technical concerns of the companies." Hornig served on the President's Science Advisory Committee under Presidents Eisenhower, Kennedy, and Johnson, and was a special

assistant on science matters under Johnson. "My experience," Hornig said, "is enormously germane to what [the companies] do."[33]

The "primary objective" of the Program in Environmental Health and Public Policy, one part of the Interdisciplinary Programs which Hornig directs, "is to enlist scholars from the natural and social sciences in finding new ways to deal with the critical environmental problems of today's society." One of its three main foci is "studying and analyzing alternative approaches to regulation after assembling the data needed for the technical, economic and political assessment of environmental risk,"[34] certainly a goal of interest to Westinghouse, a manufacturer of nuclear power plants. The parallel to Ebert's situation is strong: Hornig's directorships conflict with his responsibilities in the same way Ebert's did. Hornig responded that while it is "always conceivable that an intellectual conflict" could arise from his multiple affiliations and obligations, he has never felt one to exist. He added that the fellows in the Interdisciplinary Programs in Health are extremely free to pick their own topics.

Hornig thought his directorships, disclosed to the dean, were also publicly disclosed by the University. To his credit, he said he "would be all for" public disclosure of scholars' extramural activities.[35]

In an analysis of a 1975 "Scientists' Statement on Energy Policy," Professor Charles Schwartz of the University of California at Berkeley discussed the potential of corporate connections to truncate the views of academics. The statement on energy policy was signed by thirty-two leading scientists, including eleven Nobel prize winners. The scientists released it at the National Press Club in Washington, D.C., and it circulated throughout the country; the San Francisco Chronicle, for example, published it in full and ran an editorial supporting its propositions. The letter described "the energy

famine that threatens," said it will require "many sacrifices on the part of the American people," and posed the threat of "the end of our civilization as we know it." To meet the "famine," it insisted that the U.S. must turn to nuclear power.[36] While the statement listed the signers' primary affiliations (twenty-six of thirty-two were affiliated with universities), it did not list other affiliations. Schwartz showed that eighteen of the academic scientists who signed the letter were directors or consultants to major corporations. Of the three Harvard-affiliated signers, two -- Edward Purcell (consultant for Itek Corp.) and Roger Revelle (director of the First National Bank of San Diego) -- also had corporate affiliations. As Schwartz stated, "the scope of 'reasonable alternative' solutions which they [the scientists] allow themselves to consider may be unduly restricted by their own commitments to the corporate value system."[37]

TABLE 6. OUTSIDE AFFILIATIONS OF HARVARD SCIENTISTS[1]

Name	Department	Outside Affiliation
Frederick Abernathy	Engineering Sciences	Consultant to Arthur D. Little; Institute for Defense Analysis
Welcome Bender	Medical Sciences	VP, J.R. Nelson & Assoc., Inc, Consulting Eng.
Elton Blout	Medical Sciences	Consultant to Polaroid; Member Bd. Dir. of CHON Corp, 1974-83; ESA Inc.; Nat'l Health Research Fund; Auburn Investment Fund Management Corp. (and investment mngr.); General Partner, Gosnald Investment Fund;
James Butler	Engineering Sciences	Consultant "various companies and agencies;" Chairman, Committee on Effectiveness of Oil Spill Dispersants
Donald Ciapppenelli	Chemistry	CEO of Cambridge Lab Consultants
Richard O'Connell	Applied Mathematics	Consultant to Los Alamos National Lab
Elies J. Corey	Chemistry	Consultant to Charles Pfizer
Paul Doty	Biochemistry and Molecular Biology	Consultant to U.S. Arms Control and Disarmament Agency
Cynthia Friend	Chemistry	Visiting Researcher, General Motors, 1981; research collaborator National Synchratron, Brookhaven National Labs
Sheldon Glashow	Physics	Consultant to Brookhaven National Labs
Roy Glauber	Physics	Consultant to Radiation Labs, U. Cal. Berkeley; Bell Telephone Labs, AT & T; and Lewis Research Center, NASA
Richard Kronauer	Engineering Sciences	Consultant to Pratt & Whitney Aircraft Div., 1951-58; Flow Corp., 1953-67; Baldwin-Lima-Hamilton Corp., 1956-61; Arthur D. Little, 1960-67; Campbell-Kronauer, 1980-
Tom Maniatis	Biochemistry and Molecular Biology	Burroughs-Welcome vis. prof., 1984; Adv. Comm. Member, Searle Scholars Program
Matthew Meselson	Biochemistry and Molecular Biology	Consultant to U.S. Arms Control and Disarmament Agency
Dade Moeller	Engineering Sciences	Member, National Commission Radiation Protection and Measurements; Advanced Committee, Reactor Safeguards
William Press	Physics	Consultant, Lawrence Livermore Lab; Mitre Corp.; Los Alamos National Lab; Member, Defense Science Board
Richard Wilson	Engineering Sciences	Consultant, NRC; Electric Power Research Inst., 1975-76; Energy Engineering Board

Note:

1. Not included in this chart are the professional organizations and government grant review panels with which scientists are normally associated.

Source: *American Men and Women of Science*, New York: Bowker.

B. THE BUSINESS SCHOOL

Professors at the Harvard Business School are enmeshed in a web of outside connections of greater magnitude than scholars at any other Harvard faculty, and probably of greater magnitude than any other university faculty in the country. Professor and Senior Associate Dean for Faculty Development Ronald Fox estimates that 75% of the academics at the Harvard Business School are involved in consulting or other forms of outside work.[38]

Table 7, a copy of the Business School's secret Company Contact Register, indicates that at least 110 of the 180 faculty at the Business School have a total of over 500 corporate connections. One professor on the list, Ray Goldberg, has forty-nine "contacts" listed, putting him far ahead of the rest of the pack.

The Company Contact Register, compiled by the Business School administration, lists professors' "contacts" -- or "ins" -- with companies. The nature of a contact varies: it may have developed while a professor studied a company, or it may be the result of a consultantship. The Company Contact Register is only produced for internal Business School circulation, where it serves two purposes. First, it facilitates the efforts of professors to approach companies with which they have no ties, by enabling them to work through those who already have contacts. Educators might seek to develop relationships in this fashion either for research purposes or to obtain consultantships. Second, by alerting professors to already existing connections between companies and other Business School faculty, the Company Contact Register prevents faculty members from "stepping on one another's turf" and potentially disturbing the interests of a colleague. The Company Contact Register is supposed to list all Business School professors' corporate connections, but even this list is incomplete, "because not

everyone [is] willing to divulge his contacts."[39]

An examination of one Business School professor's resume illustrates that even the over 500 contacts listed on the Company Contact Register represent only the tip of the iceberg of Harvard Business School academics' outside ties. The resume of Professor John Kao is included in the prospectus of a newly formed biotechnology-oriented venture capital company, Biomedical Ventures. Although Harvard Watch obtained Biomedical Ventures' prospectus, neither the prospectus nor Kao's resume lies in the public domain; because the new company will be privately held, its prospectus is circulated only among potential investors. Consequently, the resume is especially revealing; Kao has written it, in essence, with his guard down. With the formation of Biomedical Ventures, Kao will become one of its two managers.[40] He is also the manager of Biomedical Venture's predecessor, Biosoft Ventures, and the chair of the board of a company funded by Biosoft Ventures, Biosurface Technology. Additionally, he is the chair of Pacific Artists, a film production company.[41] And, in contrast to the six companies listed on the Company Contact Register where Kao claims to have "contacts," his resume indicated he has "worked with close to one hundred entrepreneurial firms as a consultant, researcher, and director," most while he has been a faculty member at the Harvard Business School. The companies with which "Professor Kao has had a research or business involvement include

> Genetics Institute, American Express, Russell Reynolds Associates, E.F. Hutton, Price Waterhouse, Scandinavian Airlines System, IBM, Integrated Genetics, Paramount Pictures Corporation, Twentieth Century Fox Film Corporation, Syntelligence, Digital Equipment Corporation, Symbolics, Leo Castelli Galleries, Dainana Securities Company, Catalyst Technologies, Cognetics, Royal Dutch Shell, Au Bon Pain, and Lotus Development Corporation.[42]

Less detailed information concerning Business School academics' outside ties

which are not listed in the Company Contact Register is available for educators who serve on the board of directors of publicly held companies. Table 8 lists some directorships held by Business School professors, including those that do not appear on the Company Contact Register.

One professor, Walter Salmon, has sat simultaneously on the board of at least 8 companies.[43] According to J. Paul Mark, in his book *The Empire Builders*, Salmon is an attractive board member precisely because he has so many connections, and is able to tap into the network of Harvard Business School scholars' corporate ties.[44] Even if Mark's analysis is wrong, the extent of Salmon's boardroom romping makes it nearly inconceivable that he meets both his corporate and University obligations. It is estimated that a director spends about two weeks per year working in his or her capacity as a board member.[45] Meeting his obligations as a director for eight companies would have thus required almost one-third of a year, virtually forcing Salmon to violate the University rule allowing one day a week for extramural activities, and would hardly leave time for a responsible teaching and research schedule.[46]

The money-making possibilities facing Business School academics who make use of the potential opportunities of the school are tremendous. Salmon makes, at minimum, $119,000 annually in director's fees alone.[47] Faced with this sort of opportunity, educators must find it trying to stay within Harvard's guideline of limiting outside work to one day a week. Indeed, it appears that many, like Salmon, fail to do so.

But there are other ways to make money at the Harvard Business School, and not all academics spend their time in board meetings. Some travel on the lucrative lecture circuit. In 1984, according to *U.S. News and World Report*, Professor Rosabeth Kanter

made 107 appearances on the lecture circuit, and anticipated making 125 in 1985.[48] *U.S. News and World Report* reported that "her earnings from speeches alone will be over $400,000," while Mark claimed that her 1986 appearance fee was $15,000.[49]

Consulting, however, is the most widespread activity of Business School professors. Dean Fox estimated that consulting fees normally run in the $1,200 - $5,000 a day range, depending on the professor's experience and the type of project he or she is working on. He did not find untenable Mark's claim that fees may amount to $10,000 a day.[50] Mark stated that Professor Michael Porter and his consulting firm, Monitor Company, charge $10,000 a day to provide advice to interested companies.

Such high rewards inevitably tempt faculty members to neglect their academic responsibilities. According to Mark, "those professors who knew Michael Porter at all had reason to believe that his statement to the *New York Times*, to the effect that his outside consulting activities occupied just 20 percent of his time, was an underestimate."[51] Mark claimed that Porter and "other highly paid consultant-professors" use sources in the classroom that they authored (and with which they are therefore familiar) as a way to reduce class preparation time to a minimum.[52]

Consultant-professors may find it difficult to separate their two roles, and consequently may abuse the privileges associated with professorship. Porter has acknowledged that "my teaching and consulting are very closely entwined." The *New York Times* reported that Porter used his students to help him devise strategies for the clients of his consulting firm, the National Football League among others.[53]

Mark charged that some professors, and particularly C. Roland Christensen, use data gathered in the course of researching case studies not included in the case studies themselves "to build information bases for their own purposes."[54] (Case studies

lie at the center of the Business School's curriculum; classes examine particular examples of business problems, and class time is spent discussing alternative possible resolutions to them). Fox agreed that were this true, it would constitute a serious conflict of interest.[55]

Business School professors' research, even more than teaching, is intertwined with their outside work. It is commonly known that professors consult for many of the same companies about which they write case studies. Fox has explained that it is not possible for cases to be biased by professors' outside connections. He stated that an ideal case is designed to divide the class discussing it down the middle. Accordingly, Fox said, case studies do not describe a particular company's situation; they often "disguise," or alter, the actual facts of a given company or situation.[56] Nevertheless, the possibility that case studies are written for the purpose of securing future consultantships,* raises questions about professors' research priorities being affected by their desire to obtain outside sources of income.

Not all Business School scholarly work seeks to divide readers down the middle, however. Much of professors' published work has a traditional form, making arguments and seeking to affect corporate and public policies. In these instances, academics' outside connections can, potentially, affect their conclusions and recommendations. Professor Regina Herzlinger, for example, has extensive interests outside Harvard Business School. She sits on the boards of the Allegheny Power System and Cognition, Inc. More pertinently, she sits on the boards of two non-profit

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*Fox stated that this possibility, which Mark claimed to be a general practice (J. Paul Mark, *The Empire Builders: Power, Money and Ethics Inside the Harvard Business School*, New York: William Morrow and Co., 1987, p., 79), is "entirely possible, though it sounds contrived" (Interview with Ronald Fox, March 1988).

hospitals, Brigham and Women's and the Beverly Hospital, is the founder of a computer based medical instrument manufacturer, the Belmont Instrument Company,*[57] and has a "contact" with New England Critical Care (see table 7), a high technology infusion therapy company.

These involvements with health care organizations are of interest not only because Herzlinger generally writes about health care management issues, but because of a particular, controversial article which she co-authored. Entitled "Who Profits from Non-Profits?," the article argued that:

> While nonprofit hospitals receive more social subsidies than for-profits, they do not achieve better social results...Nonprofits, however, do more to maximize the welfare of the physicians who are their main consumers...For-profit hospitals, in contrast, produce better results for society and require virtually no societal investment to keep them afloat. They are more efficient than nonprofits...[58]

These charges, according to the *New York Times*, had the "medical community up in arms." The editor of the *New England Journal of Medicine*, Dr. Arnold Relman, criticized Herzlinger's study as "a mish-mash of fast-stepping sleight of hand and econometric analysis based on an algorithm that doesn't begin to measure the subtle variations of good patient care." Uwe Reinhardt, a health economist at Princeton University, charged that," The authors' bias for privatization screams out from every page of the study. I'm concerned by the apparent attempt to propogate personal bias in the guise of science."[59]

Whether Herzlinger's alleged bias is related to her involvement in health care organizations is not at all clear; what is clear, however, is that neither the academic community nor the public (except for those who were aware of her 1985 article) was

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*Herzlinger did acknowledge her relations to the hospitals and to the Belmont Instrument Company in an article published in the *Harvard Business Review* in 1985 (Regina Herzlinger, "How Companies Tackle Health Care Costs: Part II," *Harvard Business Review*, September-October, 1985, p. 108).

able to incorporate her affiliations into their evaluation of her conclusions.

TABLE 7. THE BUSINESS SCHOOL'S COMPANY CONTACT REGISTER

Faculty Name	Company Name	Date Registered
Ackerman, R.	FMC Corp	10/86
	Jefferson Smurfit	3/87
	National Intergroup	3/87
Aguilar, F.	Bowater Corp.	3/79
	C.R. Bard	10/86
	Dynamics Research Corp.	3/79
	N.V. Phillips Group	11/87
	National Sea Products	10/86
	T Cell Sciences, Inc.	11/87
Albion, M.	Harvard Review	2/86
	Helene Curtis	12/83
Amsden, A.H.	Hewlett-Packard Co.	10/84
	Hyundai Co.	10/85
	Samsung International	10/85
Anderson, D.	Tri State Conference on Steel	12/85
	U.S. Steel	1/86
Applegate, L.M.	A.O. Smith Data Systems	12/86
	Grumman Data Systems	10/87
	I.B.M.	7/87
	Lockheed Corp.	12/86
	Manufacturers Hanover Trust	8/87
	Warner Lambert	10/87
	Xerox Corp.	10/87
Austin, J.	Kraft Co.	10/79
	World Bank	11/76
Badaracco, J.	Cambridge Reports	10/81
	Engraph	10/83
	General Motors	10/87
	H.K. Porter	10/85
	I.B.M.	10/87
	Mark Twain Banc Shares	10/84
	Synthes	9/82
Baker, G.	Hay Management Consultants	10/86
	Mesa Limited Partnership	9/87
Baldwin, C.Y.	Caronan Partners	10/86
	Comdisco	2/85
	Conrail	10/86
	Odyssey Television Properties	10/86
Barnes, L.	Orion Research	11/83
Baw, W.	Charterhouse Group	10/80
Berg, N.	Lincoln Electric	2/84
	Textron, Inc.	11/79
Bohn, R.	Great Lakes Forest Products	2/87
	I.B.M.	2/87
	Intel Corp.	10/86
	Silicon Systems	6/87
Bonoma, T.	American Cablesystems Corp.	10/85
	Applied Materials	10/83
	A.T. & T.	10/86
	Benckiser G.M.B.H.	10/87
	Boston Whaler, Inc.	10/83
	Capital Cities Communications	10/83
	Cole National Optical Division	10/83
	Child World	10/85

Faculty Name	Company Name	Date Registered
(Bonoma, continued)	G.D. Searle & Co.	10/85
	Gillette Co.	10/87
	Griffin Corp.	10/83
	Hurricane Island Outward Bound School	10/86
	IDS Financial Services	10/87
	Inter-Footwear Ltd.	10/83
	Learning Systems International	10/87
	Macon Prestressed Concrete Co.	10/84
	Manac Systems International, Inc.	9/82
	MBI Business Centers	10/86
	Millipore Corp.	10/84
	Pepsi-Cola Co.	10/86
	Sea Goddess Cruises Ltd.	10/84
	Shawmut Corp.	10/85
	Smith Kline Beckman	10/87
Bower, J.	Arrow Automotive Industries	1/72
	Brown Group	11/86
	Carr Co.	10/87
	Chemical Industry Institute of Toxicology	10/81
	Disney	10/87
	Drexel Burnham Lambert	11/86
	Lazard Feres	10/87
	Marks & Spencer	12/74
	Merlowi	12/74
	Montedison	12/83
Brown, D.	J.M.B. Realty Corp.	10/85
	Marriot Corp.	10/85
Bruns, W.J.	Eastman Kodak	10/86
	Eli Lilly & Co.	10/86
	Sears Roebuck & Co.	10/86
Buzzell, R.	Barilla G.S.R. Flli	10/84
	Chelsea Industries	4/79
	Chloride Group Plc	10/87
	General Nutrition Corp.	10/82
	Strategic Planning Institute	10/85
	Swedish Match Co.	10/87
	Thetford	11/72
	United States Shoe Corp.	10/84
	VF Corp.	10/84
Cash, J.	Alcon Laboratories	11/86
	Cathay Pacific Airline	11/86
	Hong Kong Shanghai Bank	11/86
	Mrs. Fields Cookies	11/87
	Rockwell International(PA)	11/86
	Rockwell International (CA)	11/86
Cespedes, F.	Actmedia, Inc.	11/86
	Honeywell Aerospace	10/87
	I.B.M.	11/86
	MCI	10/85
	Pepsi-Cola Co.	10/87
Chandler, A.	British Petroleum	9/82
	DuPont El de Nemours	9/82
	I.B.M.	10/84
Christensen, C.R.	A.D. Little	10/84
	Bank of New England	9/69
	Cabot Corporation	9/69
	Nike (Beaverton, OR)	5/82
	Nike (Portland, OR)	5/84
Christenson, C.J.	U.S. Windpower, Inc.	10/85

Faculty Name	Company Name	Date Registered
Clark, K.	Carolina Mills	5/83
	Ford Motor Co.	9/82
	General Motors	9/82
	Hanes Corp.	5/83
	TRW, Inc.	4/81
Collis, D.	General Electric Co.	10/87
	Omron Tateisi Electronics	10/86
	Saatchi & Saatchi	10/87
Crane, D.	American Can Co.	3/84
Crum, M.C.	Equitable Life Insurance	9/87
Dhebar, A.	Batterymarch Financial Mgt.	10/87
	New England Digital Corp.	10/87
	Reuters Plc (NY)	10/87
	Reuters Plc (England)	10/87
Dooley, A.R.	Dowty Group Plc	10/86
	Far East Group Ltd.	10/83
	Joan Fabrics Corp.	7/76
	Keith-Stevens, Inc.	10/86
	Minebea Company Ltd.	8/87
	Philips Indutries	11/76
	Wilson Stationery & Printing Co.	12/81
Drumwright, M.	IDS Financial Services	6/87
Eccles, P.	Visa International	7/81
Eisenstat, R.	Owens-Illinois	10/84
	Westinghouse Electric	10/84
Flaherty, M.T.	Barry Manufacturing Co.	10/85
	Cummins Engine, Inc.	4/84
	Sunbeam	11/86
Fox, J.R.	Dresher, Inc.	10/83
	Marshall Bartlett, Inc.	10/83
Gabarro, J.J.	Arthur Young International	10/85
	Clarkson Gordon & Co.	10/86
	General Electric Financial Services	10/87
	Goldman Sachs & Co. (NY)	10/86
	Goldman Sachs & Co. (England)	10/86
	Handelsbank	10/81
	Heineken NV	10/84
	Standard Oil	10/86
Gammill, J.F.	New England Mercantile Exchange	10/87
Garvin, D.	Ashland Chemical	12/85
	Boeing	12/85
	Digital Equipment Corp.	9/86
	Lehrer/McGovern	9/86
	LTV (Aero Division)	12/85
Glauber, R.	FMC Corp.	10/86
	Gannett Corp.	10/86
Goldberg, R.	Advanced Genetic Sciences	9/87
	Agri-Mark, Inc.	11/81
	All-Flow Corp.	8/84
	Archer Daniels Midland Co.	11/81
	Bayside Entrp., Inc. Penobscot Poultry	11/81
	Blue Gold Sea Farms, Inc.	11/81
	BOC Silcock Ltd.	11/87
	B.P. Nutrition, Inc.	11/87
	Cargill	11/73
	Cenex	11/87
	Coca-Cola Co.	10/84
	Colly Farms Cotton Ltd.	11/87
	Chase Investment Bank	11/87

Faculty Name	Company Name	Date Registered(
(Goldberg, continued)	China Ministry State Farms Land Rec.	11/81
	Cook Industries	11/73
	CPC International	10/82
	De Kalb Ag Research	11/73
	Dreyfus Louis Corp.	11/73
	Early California Industries	10/82
	Elders IXL Ltd.	11/87
	Exeter Orange Co, Inc.	11/81
	Farm Credit Administration	11/87
	Farm Credit Banks of Springfield	11/81
	Farmland Industries, Inc.	11/87
	Farms of Texas	11/87
	GCC Beverages, Inc.	11/81
	General Mills	5/84
	Gruppo Ferruzzi	11/87
	H.P. Hood, Inc.	11/81
	Heinold Commodities, Inc.	9/82
	Heublein, Inc.	9/69
	Indiana Farm Bureau Cooperative	11/73
	International Bank Reconstruction	10/82
	International Proteins Corp.	11/78
	Loblaw Companies, Inc.	10/82
	National Dairy Dev Board	10/82
	Nestle Co., Inc.	11/73
	Nu Maid Products	11/76
	Oaks Farms	11/87
	Occidental Petroleum	11/81
	Oxfam-America	11/81
	Pepsi-Cola Co.	10/84
	Pillsbury	11/73
	Pioneer Hi-Bred International	9/82
	Ralston Purina	4/84
	RCA Industries, Inc.	11/76
	Saskatchewan Wheat Pool	11/81
	Sears World Trade, Inc.	10/84
	Stop & Shop (Quincy, MA)	10/81
	Stop & Shop (Boston, MA)	11/81
	Welch Foods	11/73
Goldstein, D.	Bank of New England	10/86
Goodpaster, K	Borg Warner (WV)	10/82
	Borg Warner (IL)	5/82
	Phillips & Sons Co.	10/85
Greyser, S.	American Association of Advertising Agencies	12/74
	Association of National Advertisers	12/76
	Comp-U-Card International	10/84
	Crafted With Pride in USA Council	11/86
	J.P. Stevens & Co.	11/86
	National Basketball Association	11/86
	Navistar	8/87
	NBC	10/83
	Northwestern Mutual Life Insurance	12/76
	Phillips Petroleum Co.	12/82
	Primerica	8/87
	Public Broadcasting Service	11/86
	Putnam Financial Services	11/86
	Restaurant Associates	10/84
	S.C. Johnson	9/82
	Tonka Corporation	6/87
	Unilever Ltd.-Marketing Dept.	11/81

Faculty Name	Company Name	Date Registered
Hackman, R.	OMB	10/86
	People Express	10/86
	Signetics Corp.	10/86
Hamermesh, R.	General Electric Co.	10/82
Hammond, J.	I.B.M.	11/87
	McNeil Consumer Products	11/87
Hart, C.	American Repertory Theatre	10/86
	Au Bon Pain	10/86
	Club Med	5/86
	Florida Power & Light	11/87
	Paul Revere Insurance Co.	8/86
Hauptman, O.	Dukane	1/87
	Intermagnetics General Corp.	10/87
	International Computers Ltd. (London, England)	10/86
	International Computers Ltd. (Reading, England)	10/86
	Owens-Illinois (OH)	10/87
	Owens-Illinois (PA)	10/87
	Supercon	10/87
Hayes, R.	Alcon Laboratories	10/84
	Johnson & Johnson	10/86
	Molex International	10/83
	Perkin-Elmer	10/85
Hecksher, C.	Shell-Chemical Plant	3/86
Hertenstein, J.	American Can Co.	10/86
	Colt Industries	9/87
	Exxon Co.	10/86
	General Cinema	10/85
	Holiday Inns, Inc.	9/87
	Rohm & Haas Co.	10/85
	Squibb Corp.	10/86
Herzlinger, R.	Beverly Hospital	10/84
	Health Stop	9/81
	New England Critical Care	10/84
	Radcliffe College	10/86
Heskett, J. L.	Colgate-Palmolive	8/87
Hill, L.	Hughes Aircraft	8/87
Isenberg, D.J.	Kollmorgen	10/86
Jaikumar, R.	VLSI Technology, Inc.	1/86
Jensen, M. C.	Colt Industries	9/87
	Drexel Burnham Lambert	10/86
	Holiday Inns, Inc.	9/87
	Mesa Limited Partnership	9/87
	Wegmans	10/87
Jick, T.	Apple Computer	9/85
	Consumers United Group	10/86
	Continental White Cap	9/85
	General Electric/Radio Corp America (CT)	7/87
	General Electric/Radio Corp America (IN)	7/87
	Honeywell	12/86
	Jones, Day, Reavis, Pogue	12/86
	Motorola	9/85
	Playboy Enterprise, Inc.	9/85
	Procter & Gardiner	10/86
	Shearson Lehman Brothers	7/87
	Unisys	7/87
Kanter, R.M.	Analog Devices	11/87
	Delta Airlines	2/87
	Eastman Kodak	11/87
	Lucky Stores	8/87

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Faculty Name	Company Name	Date Registered
(Kanter, continued)	New England Electric System	11/87
	Ohio Bell	11/87
	Pacific Telesis	10/86
	Raytheon Company	11/87
	Rockport Co.	10/86
	Simon & Schuster, Inc.	10/86
	Tektronix	2/87
Kao, J.	American Express Co.	11/84
	Bass Brothers Enterprises	10/85
	Catalyst Technologies	11/84
	Integrated Genetics	11/84
	Lotus	11/83
	Lucasfilm	8/82
Kauffman, P. J.	Computerland	10/87
	Dunkin Donuts of America, Inc.	6/87
	Pizza Hut	10/86
Klein, J.	Owens Illinois	11/87
	Pratt & Whitney-United Technologies	10/84
	Tektronix	11/87
	United Research Co.	10/85
Kosnik, T.	Adapso	4/87
	Alliance	8/87
	American Management Systems, Inc.	4/87
	Bain & Company	8/87
	Boston Consulting Group	8/87
	Braxton	8/87
	Cerberus	4/87
	Deloitte Haskins & Sells	4/87
	Digital Equipment Corp.	4/87
	McKinsey & Co.	8/87
	Microsoft, Inc.	4/87
	Smith Kline	4/87
	Spectrum Training Corp.	4/87
	Strategic Planning Associates	8/87
Kotter, J.P.	Pepsi-Cola Co.	10/87
	Procter & Gamble	10/87
Law, W.	Crompton & Knowles	10/75
	Dynatech, Inc.	10/80
	E.F. Hutton	10/75
	Paco Pharmaceutical Packaging	10/84
	Security Capital Corp.	3/73
Lawrence, P.	Millipore Corp.	11/71
Leonard-Barton	Digital Equipment Corp. (Hudson, MA)	10/83
	Digital Equipment Corp. (Springfield, MA)	9/87
	Digital Equipment Corp. (Westminster, MA)	9/87
	Digital Equipment Corp. (Augusta, MA)	9/87
	Digital Equipment Corp. (Galway, Ireland)	9/87
	Eastman Kodak	6/85
	Hewlett-Packard Co. (CA)	9/87
	Hewlett-Packard Co. (Waltham, MA)	9/87
	Hewlett-Packard Co. (Andover, MA)	9/87
Levitt, T.	A.M. International, Inc.	10/84
	Consolidated Natural Gas Co.	5/82
	Gintel Fund, Inc.	5/81
	Rothschild, Inc.	10/85
	Saatchi & Saatchi	11/86
Lorsch, J.	Burlington Northern	10/86
Luehrman, T.A.	Merck & Co., Inc.	2/87
Matthews, J. B.	Collaborative Research	7/85

Faculty Name	Company Name	Date Registered
McCormick, J.	Booz, Allen & Hamilton	9/85
	F International	9/85
	General Motors/Buick Div	10/87
	Honeywell Bull, Inc.	10/87
	Mondragon	10/86
	Motorola (IL)	10/85
	Motorola (Japan)	10/85
	Motorola (Switzerland)	10/85
	Motorola (AZ)	10/86
	Philadelphia Newspapers, Inc.	1/86
	Sterling Radiator/ Div Reed Natl.	6/85
	Thomson SA	10/83
	Toshiba (London, England)	10/86
	Toshiba (Plymouth, England)	10/86
McFarlan, F.W.	Air Products	10/81
	Capital Holding Corp.	11/86
	Ciba Geigy	2/78
	Index Systems	11/82
	Pioneer Hi-Bred International	10/87
McKenney, J.	Bachmann Information Systems	10/87
	Compass Computing	10/84
	Data General	10/85
	Dead River Co.	10/80
	Digital Equipment Corp.	10/85
	Hilton Hotels	10/83
	Holiday Inns, Inc.	10/87
	I.B.M.	10/85
	Manufacturers Hanover Trust	10/83
	Texas Airlines	10/85
	Wells Fargo Bank	10/83
Mead, M.	B. Altman	7/87
	Ciba Visioncare	7/87
	Continental Airlines	10/85
	Esab AB	7/87
	Frito-Lay, Inc.	7/87
Meerschwam, D.	Citicorp	10/87
	CSFB	10/87
	Morgan Stanley (NY)	10/87
	Morgan Stanley (Japan)	10/87
	New England Mercantile Exchange	10/87
Merchant, K.A.	Alco Standard	10/85
	Barry Wright Corp.	6/87
	Black & Decker	10/86
	Brunswick Corporation	6/87
	Dexter Corp.	10/87
	DSC Communications Corp.	6/87
	Dynatech, Inc.	10/86
	Eaton Corp.	10/86
	Gillette Co.	10/86
	HCC Industries	6/87
	Hewlett-Packard Medical Prod Group	10/86
	Marriot Corp.	10/86
	Monsanto Corp.	10/86
	Provigo, Inc.	10/87
	Tektronix	10/87
Mills, D.Q.	I.B.M.	10/81
	J.T. Baker	9/82
	Packard Electric	6/83
	R.S. Means	10/83

Faculty Name	Company Name	Date Registered
Moriarty, R.	Adelie	10/86
	BOC	10/86
	Computervision	10/83
	Citicorp	12/84
	Exxon Co.	5/86
	Signode	12/84
Paleph, K.	Harneschfeger Corp.	10/86
Pearson, A.	Colgate-Palmolive	8/87
Piper, T.	Bay Banks	10/81
	Genrad	5/84
	Marriot Corp.	10/81
Porter, M.	Arthur Anderson	10/83
	Aspen Ski Corp.	10/83
	Cameron Iron Works	10/83
	Canon, Inc.	9/82
	Cummins Engine, Inc.	10/85
	Hattori K	10/81
	Hyundai Co.	10/84
	McGraw-Hill	10/81
	NBC Corp.	10/85
	Omron Tateisi Electronics	10/85
	Rowan Co.	10/83
	Solar Turbines, Inc.	10/81
	Sulzer Brothers	10/83
	Tatung Co.	10/84
Pratt, J.W.	Coolidge Bank & Trust	11/84
	Decision Sciences Consortium	10/87
	Tucker Anthony	10/86
Quelch, J.	Beecham Products U.S.A.	10/86
	Hertz Corp.	10/86
	Illinois Bell	10/87
	Kohler Co.	10/87
Raiffa, H.	Staffer Chemical Co.	12/82
Rangan, V.K.	Atlas Copco	10/86
	Hewlett-Packard Co.	10/86
Reiling, H.	Philip Morris	10/87
Roberts, M.	CVD	10/87
	Johnsonville Sausage	10/87
	National Demographics & Lifestyles	10/87
	Telelogic	10/87
Rosenbloom, R.	Elscint Ltd.	10/83
	General Instrument Corp.	10/81
	Lex Service, Inc.	10/84
	Xerox Corp. (CA)	10/80
	Xerox Corp. (CT)	10/87
Rukstad, M.	Honeywell	10/86
	Molecular Genetics, Inc.	10/87
Salter, M.	C.M.L. Group, Inc.	11/75
	Chrysler Motors	10/81
	Electrolux	10/87
	Ford Motor Co.	10/80
	General Motors	10/81
	Grands Moulins de Paris	11/87
	Moet-Hennessy	10/85
	Olimetti	10/87
	United Auto Workers	8/81
	Volkswagon Ag	10/84
Sasser, W.	Au Bon Pain	10/86
	Benihana of Tokyo	9/73

Faculty Name	Company Name	Date Registered
(Sasser, continued)	Epsilon Data Management	10/86
	Johnson Communications Corp.	3/87
	L.Q. Inns	11/74
	Sea Pines Co.	9/73
	Waffle House, Inc.	9/73
Schaack, C.	Enforth Corp.	11/86
	Hercules Spec Chem/Aqualon	10/87
Shapiro, R.	American Aluminum & Steel	10/81
	Applicon	11/87
	Barrilla G.S.R. Flli	11/87
	Butler Manufacturing	10/85
	Digital Equipment Corp.	11/87
	Fleck MFG, Inc.	11/87
	Frito-Lay, Inc.	11/87
	Italtel	11/87
	Kasle Steel	10/83
	Molex International	10/81
Simons, R.	Baxter, Inc.	8/87
	Becton Dickinson & Co.	8/87
	Bristol-Myers Products	8/87
	Central Maine Power Co.	10/84
	Codman & Shurtleff	10/85
	Eli Lilly & Co.	8/87
	Johnson & Johnson	10/85
	Marion Laboratories, Inc.	8/87
	Merck & Co., Inc.	8/87
	Pfizer Laboratories	8/87
	Polysar Limited	8/87
Sonnenfeld, J.	Aetna Life & Casualty	10/84
	Bank of America	4/84
	E.F. Hutton	10/84
	Hartmax	10/85
	Morgan Stanley	10/84
	Travelers Insurance	10/81
Stevenson, H.H.	Hillerich & Bradsby	8/84
Sultan, F.	I.B.M. (NJ)	6/87
	I.B.M. (NY)	6/87
Sviokla, J.	American Express Co.	9/87
Tedlow, R.S.	Casual Corner	9/82
Toffler, B.	Aetna Life & Casualty	10/87
	American Can Co.	10/85
	American Express Co.	10/87
	A. T. & T.	10/87
	Atlantic Richfield	10/87
	Bellsouth	10/87
	Chemical Bank	10/84
	GTE	10/87
	Hartford Steam Boiler I & I Co.	10/86
	Touche Ross	10/87
Vancil, R.	A. T. & T.	10/87
	Ausimont, N.V.	11/86
	Avon Products	11/86
	Bristol-Myers Products	11/86
	Cetus Corp.	11/86
	Chemical Bank	3/84
	Cigna Corp.	11/86
	Corning Glass Works	11/86
	Cummins Engine, Inc.	11/86
	Dow Chemical	11/86

Faculty Name	Company Name	Date Registered
(Vancil, continued)	General Electric Co.	10/87
	Kellogg Co.	11/86
	Mac Group	11/86
	Merrill Lynch & Co.	11/86
	Time, Inc.	11/86
Van Dissel, B.J.	Netmar Corporation Limited	7/87
	Netmar International	7/87
Vatter, P.	Firestone Tire & Rubber Co.	11/86
	Hartford Steam Boiler I & I Co.	1/86
	Moore McCormack Resources	11/86
Vietor, R.	Allied Corp.	10/86
	American Airlines	10/86
	A. T. & T.	12/83
	Bay State Gas	10/86
	Bellsouth	10/87
	Burlington Northern	10/86
	Commonwealth Edison	10/86
	CSX	10/86
	El Paso Natural Gas	10/86
	GTE	10/86
	IT Corp.	10/86
	New England Telephone	10/86
Vitale, M.	Benetton S.P.A.	10/87
	Child World	11/86
	General Motors/Buick Div	10/87
	John Hancock Life Insurance Co.	10/87
Wells, L.T.	K.S.B.	12/86
	Milkpak	12/86
	Packages Ltd.	12/86
Whitney, J.C. Jr.	Cummins Engine, Inc.	10/85
Yoffie, D.	Cornes & Co.	10/86
	General Electric Co.	10/86
	Intel Corp.	10/86
	Lloyds Bank	10/86
	Lotus	1/86
	Metallgesellschaft Corp.	10/86
	Motorola	10/84
	National Machine Tool Builders Ass.	10/87

TABLE 8. CORPORATE DIRECTORSHIPS OF BUSINESS SCHOOL PROFESSORS AND ADMINISTRATORS (Partial List)

Name	Company
Francis Aquilar	Bowater
Kenneth Andrews	Xerox
Robert Anthony	Warnaco
Joseph Auerbach	Associated Madison Williams Companies
Joseph Bower	Charles River Labs
Milton Brown	Allied Stores C. R. Bard Collins and Aikman
Robert Buzzell	Chelsea Industries General Nutrition VF Corp. United States Shoe
James Cash	Affiliated Publications
Alfred Chandler	Landmark Communication
C. Roland Christensen	Arthur D. Little Bank of New England Cabot Cooper Industries
E. Raymond Corey	Norton Co. Uniroyal
M. Colyer Crum	Ex-Cell-O
John Dunlop (also Dept. Econ.)	Bird Milbank Fund GTE
Lawrence Fouraker	New England Mutual Life Insurance Gilette General Electric Citicorp Citibank Macy's Texas Eastern
William Fruhan	Harris Paul Stores
E. N. Funkhouser	Alleghany
Ray Goldberg	IBEC Pioneer Hi Bred International
Stephen Greyser	Doyle Dane Bernbach
David Hawkins	Hadco
Samuel L. Hayes III	Collaborative Research
Regina Herzlinger	Allegheny Power System Cognition Belmont Instrument Company (founder)[1]

Paul Lawrence	Millipore
Theodore Levitt	AM International
Jay Lorsch	Brunswick
John Matthews	Ampco-Pittsburgh Handleman
John McArthur (dean)	Rohm & Haas
James McKenney	New York Airlines (company of Texas Air)
Andrall Pearson	May Department Stores
Thomas Piper	Baybanks Genrad Marriott
Richard Rosenbloom	General Instrument
Walter Salmon	Quaker Oats Luby's Cafeteria Hannaford Bros. Stride-Rite Neiman Marcus Group Holiday Inns Zayre
Wickham Skinner	Dynamics Research Scientific Atlanta
Howard Stevenson	Realty Income Trust (trustee)
Robert Stobaugh	National Convenience Stores Ashland Oil
Philip Thurston	Chubb
Hugo Uyterhoeven	General Cinema Stanley Works Carter Hawley Hale
Richard Vancil	Cigna
Paul Vatter	Firestone Moore McCormack Resources
Charles Williams	Hammermill Paper U.S. Leasing
Abraham Zaleznik	Ogden Pueblo International

Note

1. See Regina Herzliner, "How Do Companies Tackle Health Care Costs: Part II," *Harvard Business Review*, September-October, 1985, p. 108.

Source: Corporate Annual Reports, 1986, 1987, 1988.

C. THE SOCIAL SCIENCES AND THE KENNEDY SCHOOL

Academics in the social sciences tend to receive the most publicity for their outside work related to the government. Educators at the Kennedy School of Government are encouraged to seek outside work, and one criteria for receiving tenure at the Kennedy School is "public service."[60] Government consulting positions of scholars at the Kennedy School are listed in the School's *Research Report*, which is available to the public. Though social scientists in the Faculty of Arts and Sciences formally interact with government less often than Kennedy School academics, the FAS does not make public the nature or extent of their work for government.

As discussed in part III, government work poses two sets of problems. First, as Bok noted, extensive government consulting may dull scholars critical thinking and render them less willing to challenge present policies and offer visionary alternatives. Additionally, certain forms of consulting may violate a number of University guidelines, as Eaton Professor of Government and director of the Center for International Affairs Samuel Huntington demonstrated while consulting for the Central Intelligence Agency. In 1986, the *Crimson* revealed that Huntington published a paper he wrote as a CIA consultant, without acknowledging his relationship to the CIA. In not disclosing his consultantship with the intelligence agency to appropriate administrators, Huntington violated Faculty of Arts and Sciences guidelines. When Huntington did mention his relationship with the CIA to Dean of the Faculty of Arts and Sciences A. Michael Spence, Spence failed to properly report the information to the University President.

Though Huntington's work was subject to CIA censorship, it was published in an academic journal without mention of the CIA's sponsorship or its role as "editor."[61]

While President Bok later found it unclear if this violated University rules requiring disclosure of research sponsorship (because the research was not initially performed under the University's aegis), he also concluded that prepublication review rights of the CIA or any other research sponsor should, in principle, be disclosed.[62]

The second potential danger stemming from involvement with the government arises from academics' additional ties, to interests besides government. A scholar may interact with government in his or her capacity as a professor, and simultaneously maintain undisclosed affiliations with private interests. Many social scientists, and particularly economists, work for consulting firms or directly for industry or banks. The most famous example of this involves the late Otto Eckstein, who founded Data Resources Inc. (DRI) in 1969, a company which grew into the nation's largest economic forecasting firm. DRI took so much of Eckstein's time that he eventually arranged to be a half-time professor at Harvard. Its clients included Union Carbide, Harris Trust and Savings, Shell Oil, Morgan Guaranty Trust, and Xerox.[63]

Eckstein was exceptional, however, not only in devoting so much time to a company, but in adjusting his relationship with Harvard accordingly and disclosing his corporate affiliation. Ten years ago, a spokesperson for one of the largest consulting firms in Boston, Abt Associates, told the *Crimson* that "'here in Cambridge, it [consulting] is a huge industry.'" Abt, he said, had employed a "'high number'" of Harvard professors.[64] Consulting firms are highly secretive about their consultants, however, and it is not possible for interested individuals to discover which Harvard scholars work for consulting firms; none of the ninety-one Boston consulting firms contacted by Harvard Watch responded to a survey inquiring about Harvard professors

employed by the companies.

The risk in this widespread consulting lies in professors' public roles. Six Harvard economists testified a total of eleven times before Congressional committees in 1985 and 1986.[65] Each time they identified themselves by their Harvard affilation, except in the cases of Martin Feldstein and Lawrence Lindsey, who also identified themselves as affiliates of the non-profit National Bureau of Economic Research (NBER). When Feldstein offered his economic analysis, listening policy makers knew about his University affiliation, his connection to the NBER, and his past tenure as chair of the President's Council of Economic Advisors; they probably did not know that he was on the board of directors of Phoenix Mutual Life Insurance and of TRW.[66] Feldstein, who continues to testify at Congressional hearings with some frequency, is rapidly increasing his outside ties. Currently, he is director of TRW, the American International Group, the Hospital Corporation of America, and Great Western Financial Corporation. He is a member of the International Council of Morgan Bank, and economic advisor to Dean Witter Reynolds and Data Resources, Inc.[67] Like Feldstein, Professor Richard Cooper did not disclose his corporate affiliations when testifying at a Congressional hearing, and so policy makers who listened to his testimony were probably unaware of his directorship at the Phoenix Mutual Life Insurance Co., and his responsibilities to this company.[68] Because the information is not routinely disclosed, policy-makers to whom economists and other social scientists direct their advice are almost certainly unaware of many of the outside ties by which academics are burdened.

Harvey Brooks, Benjamin Peirce Professor of Technology and Public Policy at the Kennedy School and Professor of Applied Physics on the Gordon MacKay Endowment

at the Faculty of Arts and Sciences, indicated in the 1986-87 Kennedy School Research Report that he "has written recently on university-industry cooperation, the research environment in universities, the historic relationship between universities and the Department of Defense, and the Strategic Defense Initiative as a form of national science policy." Additionally, Brooks "chaired the organizing committee for a recent National Academy of Engineering symposium on corporate and government technology strategies for national competitiveness."[69] While Brooks lists extensive "other activities" in the Kennedy School's *Research Report*, he does not mention that he is on the board of directors of Raytheon, a major defense contractor (see table 3).

In 1987, Brooks appeared before the House of Representative's Task Force on Science Policy of the Committee on Science and Technology, and testified about federal funding of science. In discussing science funding, he made a crucial distinction between science costs and defense costs:

> I would say that major developmental projects, particularly in defense but also projects such as the space station, should not compete with the science budget or be charged against science.
>
> On the other hand, other large projects such as, for example, the superconducting supercollider, or very large radioastronomy array, or even an applied satellite are legitimately chargeable to science.[70]

Given Brooks' premise that potential science funding was limited, the effect of his distinction would have been to remove scientific defense spending from the scrutiny and budget constraints to which other scientific funding is subjected. Brooks did not reveal his Raytheon directorship at the hearings.

Robert Leone, one of the twenty-two non-economist Harvard educators to testify at Congressional hearings in 1985 and 1986,[71] presents an unusual contrast to the secrecy surrounding professors' relations outside the University. Lowe testified on

behalf of the Automobile Importers Association (AIA) in 1985. In arguing that an increase in fuel economy standards imposed on car manufacturers would hurt consumers and actually would not result in significant energy savings, Leone was absolutely open about his affiliation with the AIA. Legislators were able to judge his credibility accordingly. In his academic writings, however, Leone does not mention his consulting for the AIA; and in the 1986-7 *Research Report* of the Kennedy School, he merely stated that he was a "consultant to numerous private firms and public agencies on both managerial and economic issues."[72]

D. THE LAW SCHOOL

The clandestine nature of Law School professors' outside work for private clients precludes an aggregate presentation, an objective measure, of their moonlighting. Nonetheless, there is no doubt that professors engage in extensive outside consulting; one professor has stated that at least ten members of the Law School faculty violate the University's guideline that professors should spend no more than one day a week on outside activities.[73]

The outside work of many professors at the Law School is (partially) known because it garners national attention. Professor Alan Dershowitz, who regularly draws national media attention, most recently did so for his defense of Clause von Bulow. Professor Abram Chayes helped represent Nicaragua in its 1984 suit of the United States in the International Court of Justice. Professor Laurence Tribe, who has argued numerous times in front of the U.S. Supreme Court, is often involved in high-profile cases; for example, he has consulted for Pennzoil in its ongoing suit against Texaco.

Harvard Law School professors' moonlighting is not limited to courtrooms and law offices; in 1983, the *Crimson* ran a story on Harvard Law School's two television stars, Arthur Miller and Charles Nesson. Nesson stated that he was ending his professional relationships with television because he "felt he was being captured by the medium. 'I felt I was becoming a television person.'"[74] Miller has chosen to continue his television work. He told the *Crimson* that his outside work takes no more than one day a week (and is thus within University guidelines). However, time is not the only issue: one student observed that "Miller's work distances the professor from his students. 'We're talking about a media superstar...He may be away no more than other professors, but

it's a question of impressions, and that's what's most important when you're talking about access.'"[75]

While high-profile professorial moonlighting poses serious problems, primarily involving conflicts of commitment, the academic community and the public are at least aware of these instances, and able to incorporate them into their assessment of professors' scholarship and public comments. This is not the case with most examples of the Law School faculty's consulting. Law School professors routinely consult for corporate-oriented firms and directly for corporations, but their activity is mired in secrecy and nearly impossible to document.

V. ACADEMICS IN THE PUBLIC AND CORPORATE EYES

Society looks to academics as objective social commentators. The news media regularly ask educators to discuss political, economic, and social phenomena; scholars regularly testify before Congressional and other governmental committees and serve on governmental advisory committees; the scholarly works of professors may profoundly affect the terms of public debate on a myriad of issues. In each case, the public makes certain assumptions centering on a trust expectation: that professors are independent commentators, unburdened and uncontaminated by ties to powerful institutions which have their own profit motivated agendas; that scholars arrive at conclusions with only intellect and conscience as their guides. These assumptions, as parts III and IV of this report showed, are, frequently, unjustified. Citizens, however, have almost no way to become aware of academics' multiple affiliations or to guard against the consequences of these connections, except by adopting a cynical attitude to all who pose as scholarly commentators.[76]

The performance of academics in the public arena all too often justifies, at least, skepticism. Professors are often closely linked to the most powerful institutions in our society: corporations, civil government, and the military. Both a push and a pull draw academics and corporations together. Desire for monetary remuneration, research funding, and a chance to work in "the real world" lead professors to seek out employment opportunities with corporations, or, indeed, to create new corporations. Scholars' interest in corporations is reciprocated. Companies express interest in academics not only to tap their technical expertise, but also, sometimes, to influence their beliefs and scholarly output.

This process is one of cooptation, and the outcome of real and conscious policies of

industry. Bruce Owen and Ronald Braeutigam, in *The Regulatory Game: Strategic Use of the Administrative Process*, explained that firms should coopt academics as a mechanism to handle interaction with government:

> Regulatory policy is increasingly made with the participation of experts, especially academics. A regulated firm should be prepared whenever possible to coopt these experts. This is most effectively done by identifying the leading experts in each relevant field and hiring them as consultants or advisors, or giving them research grants and the like. This activity requires a modicum of finesse; it must not be too blatant, for the experts themselves must not recognize that they have lost their objectivity and freedom of action.[77]

Owen and Braeutigam's observation has been policy for a variety of industries for many years, as has been documented in several instances.

In 1971, a witness at hearings of the Senate Subcommittee on Intergovernmental Relations revealed a public relation firm's plans for a concerted campaign to promote the interests of the Air Transport Association of America (ATA).[78] The plans, detailed in a memorandum written by the public relations firm Hill and Knowton, Inc., called for a broad-based campaign relying on the media, intellectuals, businessmen, and advertising to promote a multi-faceted agenda. "The ultimate purpose of this program is to help the industry achieve its legislative and regulatory aims," the memorandum stated. Among other goals, the agenda sought "to define, and continuously refine, economic positions common to participating airlines;" and "to achieve more favorable editorial attitudes toward industry's Washington aims." The memorandum listed ideas, and the people who generate them, as the key targets of its plans:

> We believe achieving these aims will be made easier if the people whose ideas affect the industry's success -- wherever they are -- can be made well-informed about industry economies. We believe further that many will lend active support to the industry if they are persuaded that it is in their own interests to do so. And we believe that many who might otherwise oppose the industry out of ignorance will remain neutral if they become conversant with the facts.

Thus, the memorandum argued, one of the groups that must be targeted was "the media of ideas -- academic publications, and popular journals of opinion, [and] the college milieu-elite faculties of economics and their graduate students."[79]

While Hill and Knowlton suggested the ATA had to influence only the top 100 relevant opinion makers, the American Telephone and Telegraph Company, at least before its breakup, hired professors on a much larger scale. A report released by the North American Telephone Association in 1982 stated that AT&T paid hundreds of professors almost $3.5 million in 1981 to argue against divestiture in their consulting work, economic studies, and expert testimony in courts and Congress.[80] Some individual professors were paid almost a quarter of million dollars for consulting services. The North American Telephone Association, a membership organization, was unwilling to provide Harvard Watch with further information indicating whether any Harvard professors were employed by AT&T.*

Ayerst Laboratories has recently provided another example of the corporate strategy of influencing professors by putting them on a company's payroll. In an effort to combat increasing consumer reliance on generic drugs, Ayerst, a pharmaceutical company and division of American Home Products, paid "for more than a dozen academic physicians to go on tours to tell newspapers and broadcasters about the dangers of generic substitution. The tours generated dozens of articles with headlines like

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*Utility companies have long relied on consulting arrangements as a mechanism to enlist academics in the political struggles of the day. Educators, it is hoped and expected, will both teach particular viewpoints to their students and publicly advocate particular policies. "If the public utilities were to win college graduates over to their economic point of view, Marvin H. Aylesworth, the director of the National Electric Light Association, had told a utilities group [in the 1930s], they had first to win over the college professor. 'Once in a while it will pay you to take such men, getting five or six hundred or a thousand dollars a year, and give him a retainer of one or two hundred dollars per year for the privilege of letting you study and consult with him.'" U.S. Senate, *Summary Report of the Fedreal Trade Commission...on Efforts by Associations and Agencies of Electric and Gas Utilities to Influence Public Opinion*, 70th Congress, 1st Session, 1934, p. 149, quoted in Daniel J. Kevles, *The Physicists: The History of a Scientific Community in Modern America*, Cambridge, Massachusetts: Harvard University Press, 1987, pp. 244-5.

'Generic Drugs Can Be Serious Health Hazard.' Only a few of these articles explained Ayerst's interest in the issue."[81] According to John McHugh, the president of the Retired Persons Services, Inc., an affiliate of the American Association of Retired Persons, the hired professors (perhaps unknowingly) propogated thoroughly discredited stories in an attempt to harm the reputation of generic drugs.[82]

In each of these examples -- involving the ATA, AT&T, and Ayerst -- the corporations involved did not bribe professors to lie. Rather, they engaged in a more sophisticated strategy of "influencing" academics. The strategies were crafted to coopt educators, and designed to do so without letting scholars realize their role in broad corporate strategies.

The secrecy surrounding corporate-academic connections is essential to these attempts at cooptation, because disclosure of educators' corporate ties will lessen these scholars' legitimacy as social commentators in the public's eye. Professors, meanwhile, oppose disclosure, and insist they have not been influenced by their outside connections. Even Fred Stare (the Harvard nutritionist whose story was told in part IV), a professor clearly affected by corporate ties, claimed that his objectivity was not compromised by his outside affiliations.

VI. THE CASE FOR PUIBLIC DISCLOSURE OF SCHOLARS' EXTRAMURAL ACTIWITIES

Because of the wide array of outside activities in which Harvard educators engage, professorial moonlighting raises a series of complex and interrelated issues. As some faculties of Harvard recognize in their policy statements on extramural activities, academics' moonlighting potentially create two types of conflicts: conflicts of commitment and conflicts of interest. These two types of conflict are themselves multi-faceted.

CONFLICTS OF COMMITMENT

In his address at Harvard's 350th Anniversary Celebration on September 6, 1986, President Bok observed that "many professors are encumbered even more [than they are in fundraising] by all the opportunities that come to them in a society hungry for expert knowledge," and expressed a belief that "extramural opportunities will increase as society continues to find new needs for expertise." He warned that "in a world where scholars have to specialize so heavily and rely so much on external resources and support, loyalties are already divided..." He further asserted that the consequences of an intensification of this situation could be grave: "scholarship may increasingly lack depth and breadth...there will be less time for casual contact with students...there will be no time to make a serious effort to comprehend how students learn and how they can be helped to learn more."[33]

For many students, Bok's comments describe a current reality with which they are all too familiar. They may not realize, however, the specific factors that distance their professors from them. This report has shown that one root cause of this distance is professors' outside commitments. Faculty who sit on the boards of a half dozen companies or are involved in extensive consulting relationships are inevitably strapped

for time. Professorships, though, are full-time jobs, for which professors receive full-time pay; and students have a right to expect the operational associations that attach to full-time status.

Another type of conflict of commitment involves the misuse of one of Harvard's resources: its libraries, laboratories -- and students. Business School professors, for example, seek and make use of students' knowledge and ideas to solve problems incurred in the educators' outside activities.

To a significant extent, these conflicts are unavoidable without good-faith commitments on the part of academics to place limits on the extent of their outside work and to keep it distinct from their scholarly efforts at the University. But a disclosure requirement can mitigate professorial abuses. Administrators at both the Business School and Kennedy School of Government have indicated that their disclosure requirements result in the (occasional) limitation of certain faculty activities.

Internal disclosure requirements, however, are inadequate. The Huntington-CIA incident witnessed the complete failure of the Faculty of Arts and Science's monitoring process. The Tseng case witnessed not only the failure, but the complete impotence of the Medical School's monitoring process. Both examples demonstrated that administrators, burdened with many responsibilities and occasionally with a self-interest in the work they are supervising, may not successfully oversee their faculty's activities. Making information regarding moonlighting public would help to guard against administrative or committee oversights. Furthermore, it would enable undergraduates choosing classes and graduate students choosing advisors to have a fuller picture of the outside responsibilities of professors, and allow them to take this information and its potential implications into account.

CONFLICTS OF INTEREST

Parts III and IV of this report pointed to two types of outside influences on professors' research: first, connections which create a direct conflict of interest; second, indirect pressures in which professors' outside ties change their orientations.

Direct and obvious conflicts of interest arise when a scholar's research or teaching is compromised by his or her connections to outside institutions; that is, when an academic has a material interest in the outcome of his or her research. This category also includes the direction of graduate students into areas of research firms in which professors have monetary interests. The anecdotal information offered in part IV documents numerous cases of definite or likely conflicts of this sort. Because of the secrecy which surrounds academic moonlighting, however, it is impossible to offer aggregate information regarding these situations. That these conflicts arise at all suggests the failure of Harvard's current monitoring system, because it is precisely these sorts of conflicts which the system is set up to prevent.

Indirect conflicts are a much more pervasive and, in many ways, a more serious problem than direct conflicts. This report presented aggregate documentation for these sort of conflicts in the listing of Harvard academics' participation on the boards of the Fortune 500 (table 3), academics' participation on federal governmental advisory committees (table 4), scientists' ties to biotechnology companies and other corporations (tables 5 and 6), and Business School professors' corporate connections (tables 7 and 8). Harvard's various policies concerning conflicts of interest are utterly unable to deal with the problems that arise from these connections to outside institutions <u>because they do not view these conflicts as conflicts</u>, or even as subjects for disclosure driven debate.

While the mechanisms for enforcement of the policies are problematic, the published statements of the various faculties concerning conflicts of interest at least identify the theoretical problems of conflict of commitment and direct conflict of interest. They do not recognize the additional problem Derek Bok identified: as professors become accustomed to dependence on outside patrons and a particular sort of influence, "they may also grow cautious, conventional, and less able to take a detached and critical view of the events and policies in which they become enmeshed."[84] Nor do they acknowledge that these "natural" tendencies are exacerbated by corporate strategies, outlined in Owen and Braeutigam's *The Regulation Game* , to coopt academics. Finally, they do not consider the compromising effects widespread outside ties -- such as those found at the Business School or in the sciences -- may have on an entire department or faculty's orientation.

The Harvard Administration could take an essential first step toward dealing with the problems associated with both direct and indirect conflicts of interest by requiring comprehensive public disclosure of professors' moonlighting. Publicizing professors' extramural activities would offer valuable new information to University community members who evaluate professors' work. Undergraduates, for example, who often are introduced to subjects by their professors, would be able to gain a fuller perspective on their teachers' lectures and positions. This information would also be of interest to those who evaluate scholars' research -- their peers and the public -- in the same way that sources of research funding are. In a 1986 open letter, President Bok wrote that when a research

> sponsor has a direct business interest in the conclusions expressed by the author[,]...the funding arrangements would therefore be material to many readers. As a result, the author should disclose the source of funding, and the University

> can legitimately insist on disclosure to protect the legitimate interests of the public.[85]

Certainly the same standard should be applied when a researcher has a personal business interest in the conclusions he or she expresses, due to consultantships or directorships.

Disclosure of scholars' outside institutional affiliations would broaden the monitoring process at faculties where disclosure is currently not required, such as at the Faculty of Arts and Sciences, the Law School, and the Medical School. With the possible exception of a few crooked individuals, no professor is likely to believe that he or she has been (or is going to be) coopted -- subtly or otherwise -- by outside forces; independent observers are necessary to make such a determination. Public disclosure of academics' outside activities would allow those who evaluate scholars' work -- not just those in special positions at the University -- to consider the potential influences educators' outside ties may have on their research. All potentially conflictual relationships should not be prohibited, but they should all be revealed so that the public is able to evaluate their impact.

Finally, the functional reason for making the information public to safeguard against transgressions of University rules (which administrators or a committee may overlook) applies in this instance as well as with respect to conflicts of commitment.

What About Privacy?

The primary objection raised by academics to the notion of publicly disclosing their extramural activities is that such a policy would violate their right to privacy. Professor Thomas H. Wilson, in response to a request that he voluntarily disclose his outside connections, stated that "It seem to me that it is no business of yours. I will do the best I can to see that you cannot get this information."[86] As this report has demonstrated,

however, Wilson was wrong: what professors do is the business of students, who are entitled to have adequate time with their professors and assurances that their trust in their teachers in justified; it is also the business of those who help pay for or whose professional role is to review scholars' work.

Still, questions relating to privacy should not be dismissed lightly. The most important response to the privacy objection is that by its very nature, academics' paid outside work affects the public; thus even the notion that these activities are private is questionable.

Moreover, scholars' extramural activities are bound up with their positions at the University. They are not private, personal activities, but in many ways University connected and nourished; they thus place upon professors and administrators an obligation to meet the University community's standards of openness. The connections between professors' University position and their moonlighting are multi-fold. First, as Schwartz noted, "by awarding the title of 'professor,' the university has bestowed upon the individual a very special credential which elevates his or her value as an expert consultant; and in this way the professor is already tied to the university in carrying out any 'private' practice."[87] Second, the outside arrangements professors secure arise not only from their professional competence but as a result of their association with Harvard and its reputation. Third, the University offers a tacit endorsement of scholars who engage in outside activity by virtue of the fact that it pays them for time spent on moonlighting. In addition, some of the intellectual work professors perform at private companies would have otherwise been performed at the University; as such, the resulting intellectual property would have been located in the public realm. Finally,

some schools, notably the Kennedy School and the Business School, include outside service as a criteria for tenure evaluation.

The primary response to this set of arguments concerning scholarly obligation to Harvard made by Carnesale, Dreben, and Fox is that outside activities enhance professorial work within the University. In this way, they claim, educators meet their obligations to Harvard. But as Dreben admitted,

> It would be hard to say that all consulting by FAS members enhances the FAS members' work. What we are concerned about is that it doesn't harm it. Indeed our concern for work is that consulting or anything like it doesn't weigh against your work. To claim [that] to do it makes you a better scholar becomes even more [unreasonable].[88]

Certainly outside work may benefit some professors' work, but Dreben's point remains valid: "as time has gone on, this justification has become very attenuated."[89] In any case, it is not at all clear why the possibility that professors may benefit from certain sorts of activities which are related to the Harvard but take place outside of the University's aegis exempts these educators from the University's standards of openness. Furthermore, in no sense does the potential benefit to University work counteract the obligation of scholars' who influence decisions that affect the public to disclose their various affiliations.*

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*Schwartz properly dismisses an objection related to the privacy argument: "'Where do you draw the line in requiring disclosures?' This argument may be used in an attempt to throw up a smokescreen, as with Dean Holton's remark, 'Maybe you need to know if your political science teacher hates his mother.' For another illustration, several years ago it was proposed that officers of the American Physical Society (APS) should regularly disclose to the membership of this organization all their professional consultantships, etc. Professor Luis W. Alvarez, then president of the APS, explained as follows why the proposal was rejected by the APS's governing body. 'I do not see how one can find a proper cutoff point for information if one does not restrict it to information concerning one's ability to serve the Physical Society. I think that if I happened to be a member of the Board of Deacons of the local Presbyterian Church, it would be none of the Physical Society's business. I feel the same way about my directorship on the board of the Hewlett-Packard Company, which is known to most of my friends and associates.' It should not require a PhD in anything to understand the difference, in relation to the profession of physics, between a local church and a 500-million dollar electronics manufacturing corporation. Similarly, in regard to our general disclosure rule for consulting faculty, it should not be beyond the ability of reasonable persons to draw up a reasonable set of guidelines. The primary requirement is a good faith commitment to the principle of the public's right to know about affairs that influence the public condition." (Schwartz, "Academics in Government and Industry, pp.16-7) [continued]

Alternative (Inadequate) Proposals

If attitudinal obstacles prevent the implementation of this report's recommendation of public disclosure of scholars' extramural activities, then, at minimum, the following four alternative proposals should be enacted at Harvard.

1. **Each Harvard faculty should follow the example of the Kennedy School and publish a list of professors' voluntarily disclosed outside activities.**

The only possible objection to this suggestion, bureaucratic irritation, is of insufficient importance compared to the significant benefits that would accrue to both the entire University community and the public.

2. **Harvard's faculties should compile and publish information concerning academics' extramurals which is already in the public realm.**

Many of educators' outside activities are currently required by law to be disclosed. Disclosure requirements exist for directors of publicly traded corporations, members of corporate advisory boards which are of material relevance to investors, members of governmental advisory boards, and government consultants. While information concerning professors' activities which fall into these categories is already available to the public, it is extraordinarily difficult to gather this information. Most directorships of major corporations are listed in compendiums such as *Dun and Bradstreet's Million Dollar Directory* or *Standard and Poor's Register of Corporations, Directors, and Executives*, but many directorsof smaller corporation's escape these lists. Information required to be provided in corporate prospectuses -- which may include members of

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Two points made elsewhere in this repct can be added to Schultz's incisive commentary. First, a good rule of thumb is that activities for which academics are ompensated should be disclosed. Second, not only should have Alvarez's directorship be made public, this informatbn was already required to be public. Directors of publicly held companies are required by law to be publicly disclosd.

scientific advisory boards -- do not appear on centralized lists. And the federal government no longer publishes lists of advisory committee members, which makes it impossible to obtain information on one individual without checking every governmental agency that makes use of advisory boards; this quest, which may require employing the Freedom of Information Act, can extend to over a year. In all these cases, professors' moonlighting is not private in any sense, but the relevant information is so dispersed as to make collecting it a massive task for any interested party.

3. All academics' outside activities should be disclosed to a dean or committee within each school.

This suggestion arises from the discussion above of conflicts of commitment and direct conflicts of interest. While an administrative process cannot be expected to adequately address either of these problems, it can be expected to curtail the most serious transgressions of University policy. The Huntington case provides the clearest example of how a more inclusive reporting procedure could limit abuses. The Law School and the Medical School, where it appears no one has a sense of the nature of the faculties' extramural activities, cry out for a reporting procedure even more than the Faculty of Arts and Sciences, where Professor and CIA consultant Huntington resides.

4. Where scholars use their Harvard affiliation as a credential in non-scholarly forums, they should also be required to disclose all other corporate and public agency affiliations.

This regulation would limit disclosure to only those instances where academics sought to affect the public condition, for example by testifying at a Congressional hearing or authoring an article in a popular magazine. In these cases, where Harvard's reputation functions to legitimize particular positions held by scholars, the University

has a special interest in ensuring that its professors and administrators reveal their outside affiliations.

A distinction between the use of a Harvard affiliation as a credential or merely for identification purposes would have to be drawn by the University, but the distinction should not be difficult to articulate. A starting point would be to consider Harvard's name a credential when associated with publications, testimony, etc. in fields directly related to a scholar's academic work. Harvard's name, used in other contexts, would be considered an identification. In Professor Stephen J. Gould's writings on baseball, for example, his affiliation with Harvard would be viewed as serving identification purposes.

VII. CONCLUSION: PUBLIC DISCLOSURE IN PERSPECTIVE

Serious costs accrue to both the academic community and the public as a result of the secrecy which surrounds scholars' extramural activities. Without disclosure of this information, the biasing effect educators' moonlighting may have on their research cannot be gauged by their peers, the broader University community, public decision-makers, or the public at large. Other problems arise as well: professorial inaccessibility and absence from Harvard; misuse and abuse of graduate students; misuse of University resources. Only public disclosure fully addresses the problems associated with scholars' extramural professional activities.

The call for public disclosure of scholars' moonlighting is not original to this report. Many of those who have considered the issue and dealt with its implications have also concluded that public disclosure is necessary to guard the public interest. The most comprehensive study of professors' outside activities, *Dollars and Scholars: An Inquiry into the Impact of Faculty Income upon the Function and Future of the Academy* , prepared by the Ethical and Economic Issues Project of the University of Southern California under the direction of Professor Robert Linnell, supported public disclosure of educators' outside professional activities.[90] Congressman Rosenthal and the Center for Science in the Public Interest's 1976 study, "Feeding at the Company Trough," called for disclosure of corporate ties of academic nutritionists.[91] Both Schwartz's study "Academics in Government and Industry," and James Ridgeway's book *The Closed Corporation* proposed that all professorial moonlighting be made public.[92] Mark's controversial study of the Harvard Business School, *The Empire Builders* suggested that "complete and up-to-date lists of [Business School professors']

outside interests ought to be publicly available to anyone who requests them."[93]

Furthermore, important figures in various fields have recognized the dangers of moonlighting and called for public disclosure in their areas of expertise. The late Justice William O. Douglas proposed an editorial policy for law reviews "that puts in footnote number one the relevant affiliations of the author."[94] John Kenneth Galbraith, Warburg Professor of Economics Emeritus, has called for public disclosure of economists' outside sources of income: "Since economists speak out regularly on public issues, one should know by whom they are employed. If they are working for a government or trade union, this will generally be known. If they are working for a corporation or a consulting firm, it should equally be part of the public record."[95] Similarly, in a dialogue with Professor Sheldon Krimsky of Tufts University published in *Nature* , Massachusetts Institute of Technology Professor of Biology and Nobel laureate David Baltimore supported public disclosure of scientists' outside affiliations.[96]

The fundamental justifications of the recommendation of public disclosure of scholars' outside activities are simple to discern. They stem from the convergence of three commitments: first, to the university principle of openness and the free flow of information as a means to allow Harvard to enforce its standards and properly evaluate scholars' work; second, to the notion that students, who pay for and deserve full-time professors, have a right to know about the outside influences operating on their teachers; and third, to the principle that the public has a right to know about the affiliations, and potential hidden agendas, of those who pose as objective social commentators and attempt to influence public policy and the public condition, often with substantial public funds.

Notes

1. Peter Gosselin, "Flawed Study Helps Doctors Profit on Drug," *Boston Globe*, October 19, 1988, pp, 1.16-17.

2. "Principles Relating to Outside Activities," memorandum prepared by Dean James Vorenberg, July 20, 1983.

3. Interview with Harvard Law School professor who requested anonymity, January 20, 1987.

4. "Principles and Policies that Govern Your Research and Other Professional Activities, Faculty of Arts and Sciences, Harvard University, February 1988, pp. 8-9.

5. Interview with Burton Dreben, July 1, 1987.

6. Interview with Burton Dreben, May 19, 1987.

7. Interview with Mary Clark, August 14, 1987.

8. Interview with Fox, March 1988.

9. Interview with Albert Carnesale, July 20, 1987.

10. Interview with Carnesale, July 20, 1987.

11. See James Ridgeway, *The Closed Corporation: American Universities in Crisis* , New York: Ballantine Books, 1968, pp. 216-220 for the 1969 statistics.

12. Edward Herman, *Corporate Control, Corporate Power* , New York: Cambridge University Press, p. 31.

13. Franklin D. Murphy, chancellor of the University of California at Los Angeles, quoted in Ridgeway, p. 20.

14. Reported in Charles Schwartz, "Academics in Government and Industry: A Study of the Outside Consulting Activities of University Faculty," September, 1975. Available from Charles Schwartz, Department of Physics, University of California -- Berkeley, Berkeley, CA 94720. Edited version published as "Scholars for Dollars," *Science for the People*, January, 1976.

15. Derek Bok, *Beyond the Ivory Tower: The Social Responsibilities of the Modern University* , Cambridge, Massachusetts: Harvard University Press, 1982, pp. 24-25.

16. Contact Krimsky and Ennis at Department of Urban and Environmental Policy, Tufts University, Medford, MA 02155.

17. Quoted in Martin Kenney, *Biotechnology: The University-Industry Complex* , New Haven, Connecticut: Yale University Press, 1986, p.100; Interview with professor who requested anonymity, November 16, 1986.

18. Keith Schneider, "Harvard Gets a Mouse Patent, A World First," *New York Times* , April 13,1988, p. 1.

19. All facts and quotes related to the particulars of the Tseng case are from Peter Gosselin, "Flawed Study Helps Doctors Profit on Drug," *Boston Globe*, October, 19, 1988, pp. 1, 16-17.

20. Kelly A. Matthews, "Universities Probe Tseng's Research," *Harvard Crimson*, October, 27, 1988, p. 1.

21. Andrew Bates, "Congressional Committees to Probe Tseng," *Harvard Crimson*, October 21, 1988, p. 1.

22. See Cambridge Bioscience proxy statements.

23. Martin Kenney, p. 151.

24. Gary M. Hoffman and Geoffrey Karny, "Can Justice Keep Pace with Science?," *Washington Post* , April 10, 1988, p. B3.

25. Scott Lee and Carina Rotsztain interviewed Gilbert in *Impact*, Winter 1987-88, p. 11.

26. Interview with Sheldon Krimsky, April 19, 1988.

27. Interview with a Harvard Medical School professor who requested anonymity, November 17, 1986.

28. Benjamin Rosenthal and the Center for Science in the Public Interest, "Feeding at the Company Trough," *Congressional Record* , August, 24, 1976, p. H8975.

29. Charles Shepard, "Eating from the Hand that Feeds You," *Harvard Crimson* , September 24, 1976, p. 26.

30. Rosenthal and the Center for Science in the Public Interest, pp. H8975-H8976.

31. James M. Fallows, "Medical Dean Squibb Board Member, Accused of Conflicting Interests," *Harvard Crimson* , October 9, 1969, p. 1.

32. Cited in *Harvard Crimson* (editorial), "Ebert and Squibb," December 6, 1972, p. 2.

33. Interview with Donald Hornig, November 9, 1988

34. "Program in Environmental Health and Public Policy," Harvard Interdisciplinary Programs in Health.

35. Interview with Hornig, November 9, 1988.

36. "Toward a National Energy Policy," *San Francisco Chronicle* , February 3, 1975, p. 34.

37. Charles Schwartz, "Corporate Connections of Notable Scientists," *Science for the People* , May 1975, pp. 30-31..

38. Interview with Ronald Fox;, March 1988.

39. J. Paul Mark, *The Empire Builders: Power, Money and Ethics Inside the Harvard Business School* , New York: William Morrow and Co., 1987, p. 259.

40. "Biomedical Ventures, L. P., Private Placement Memorandum," July, 1988, p, 4.

41. "Biomedical Ventures, L. P., Private Placement Memorandum," p. 18.

42. "Biomedical Ventures, L. P.., Private Placement Memorandum," pp. A3-A4.

43. Leslie Wayne, "Who's Playing the Board Game?," *New York Times*, October 9, 1983, Section F, p. 4.

44. Mark, p. 209.

45. Wayne, October 9, 1983.

46. For the companies on whose boards Salmon currently sits: Zayre's, Quaker Oats, Luby's Cafeteria, Hannaford Bros., and Stride-Rite have a total of thirty-six board meetings per year. The board committees of these companies on which Salmon serves meet thirty times per year. Salmon also sits on the board of directors of Holiday Inn and of Neiman-Marcus. This information is contained in the corporations' proxy statements.

47. The $119,000 figure is calculated from the proxy statements of the seven companies on whose boards Salmon sits, and which appear in table 8.

48. *U.S. News and World Report* , "When These Gurus Preach, Business Bosses Listen," December 2, 1985, pp. 59-60.

49. *U.S. News and World Report* , December 2, 1985, p60; Mark, p. 92.

50. Interview with Fox, March 1988.

51. Mark, pp. 10-12.

52. Mark, p. 27.

53. Michael Janofsky, "Professors Deny Intent to Harm U.S.F.L.,"*New York Times* , May 28, 1986, p. 21; "Harvard Professor and N.F.L. Trial," *New York Times*, May 29, 1986, p. D2.

54. Mark, p. 102.

55. Interview with Fox, March 1988.

56. Interview with Fox, March 1988.

57. Regina Herzlinger, "How Companies Tackle Health Care Costs, Part II," *Harvard Business Review*, September-October, 1985, p. 108.

58. Regina Herzlinger and William S. Krasker, "Who Profits from Non-Profits?," *Harvard Business Review*, January-February, 1987, p. 93.

59. All quotes from Tamar Lewin, "A Sharp Debate on Hospitals," *New York Times*, April 2, 1987, p. D1.

60. Interview with Carnesale, July 20, 1987.

61. On Huntington, see: Michael D. Nolan, "CIA Funds, Restricts Professor's Writings," *Harvard Crimson*, February 13, 1986, p.1; David Hilzenrath, "Spence to Start CIA Inquiry," *Harvard Crimson*, February 14, 1986, p. 1.

62. Derek Bok, "Reflections on Secrecy: An Open Letter to the Harvard Community," *Harvard Gazette* , November 21, 1986.

63. Thomas W. Janes, "Moonlighting in Academia: How to Live in Style on a Harvard Salary," *Harvard Crimson* , November 7, 1975, p. 3.

64. Quoted in Janes, p. 3.

65. The six are: William Andrews, Senate Finance Committee, September 30, 1985; Richard Cooper, Economic Joint Committee, February 21, 1986; Martin Feldstein, Senate Committee on Finance, June 18, 1985; Feldstein House Ways and Means Committee, July 18, 1985,; Feldstein House Ways and Means Committee, July 18, 1985,; Feldstein, House Committee on Banking, Finance, and Urban Affairs, June 20, 1986; Lawrence Lindsey, House Ways and Means Committee, July 22, 1985; Lindsey, Senate Committee on Small Business, June 4, 1986; Jeffrey Sachs, Senate Committee on Finance, May 13, 1986; Raymond Vernon, Joint Economic Committee,

January 17, 1986.

66. See the annual reports of Phoenix Mutual Life Insurance and TRW. The 1984 Phoenix Mutual annual report, published in 1985, discussed a number of broad economic issues directly affecting the company. These issues included: the federal budget deficit; the new tax law; and banking deregulation.

67. See the annual reports of TRW, American International Group, the Hospital Corporation of America, and the Great Western Financial Corporation.

68. See the annual report of Phoenix Mutual Life Insurance.

69. 1987-88 *Research Report* , John F. Kennedy School of Government, p. 113. The *Research Report* has detailed listings of the outside activities of all Kennedy School professors and administrators; because the compilation is easily available, its listings are not included here.

70. Harvey Brooks, "Science Policy Study -- Hearings Volume 18: National Research Funding Levels," Task Force on Science Policy, House Committee on Science and Technology, 99th Congress, 2nd Session, April 15, 1986, p. 3.

71. Robert Leone, "Rollback of CAFE Standards and Methanol Vehicle Incentives Act of 1985," Senate Committee on Commerce, Science, and Transportation, 99th Congress, 1st Session, June 20, 1985, pp. 84-88. The other testimony was by: Graham Allison, House Committee on Armed Services, June 11, 1985; Elizabeth Bartholet, House Committee on the Judiciary, July 11, 1985; David Blumenthal, House Committee on Energy and Commerce, December 18, 1985; Blumenthal, House Committee on Ways and Means, March 6, 1986 (insert); Blumenthal, House Committee on Aging, March 19, 1986; Lawrence Bogorad, Senate Committee on Commerce, Science, and Transportation, May 15, 1986; Derek Bok, House Committee on Education and Labor, July 29, 1985 (insert); Bok, House Committee on Education and Labor, February 26, 1986; Bok, Senate Committee on Foreign Relations, July 24, 1986; T. Berry Brazleton, House Committees on Post Office and Civil Service, and Education and Labor, October 17, 1985; Albert Carnesdale, House Committee on Armed Services, June 11, 1985; Carnesdale; David Elwood, House Committee on Government Operations, July 9, 1985; Andrew Gleason, House Committee on Appropriations, April 29, 1986; Gleason, House Committee on Appropriations, May 6, 1986; Zvi Griliches, House Committee on Service and Technology, April 24, 1985; William Haseltine, Senate Committee on Appropriations, September 26, 1985; William Hogan, Senate Committee on Energy and Natural Resources, June 23, 1985; Herman Leonard, House Committee on the Armed Services, April 3, 1985; Glen Loury, Select House Committee on Children, Youth, and Families, November 6, 1985 (insert); Duncan R. Luce, House Committee on Science and Technology, September 17, 1985; Katherine Merseth, House Committee on Education and Labor, July 31, 1985; Frederick Mosteller, Senate Committee on Labor and Human Resources, June 11, 1985; Joseph Nye, House Committee on Armed Services, June 11, 1985; Nye, House

Committee on Foreign Affairs, August 1, 1985; Carlo Rubbia, House Committee on Science and Technology, May 14, 1985; Rubbia, House Committee on Science and Technology, October 29, 1985; Richard Wilson.

72. *Research Report*, p. 119. And see Leone's writings, particularly Robert Leone, "Ronald Reagan and the Automobile Industry: Assessing the Performance of a Pro-Business Administration from an Industry Perspective," August 8, 1983 and Robert Leone and Stephen Bradley, "Federal Energy Policy and Competitive Strategies in the US Automobile Industry," Energy and Environment Policy Center Discussion Paper Series, John F. Kennedy School of Government, Harvard University, 1982. These papers were written before Leone testified for AIA; it is not clear if he had a consulting relationship with the association at the time he authored them.

73. Interview with Harvard Law School professor (who requested anonymity), April 18, 1988.

74. Richard Appel, "The Silver Screen," *Harvard Crimson*, September 28, 1983, p. 3.

75. Quoted in Appel, p. 3.

76. See Frank Trippet, "A New Distrust of the Experts," *Time*, May 14, 1979, pp. 54-55.

77. Bruce M. Owen and Ronald Braeutigam, *The Regulation Game: Strategic Uses of the Administrative Process*, Cambridge, Massachusetts: Ballinger Publishing Co., 1978, p. 7.

78. Reuben Robertson III, "Advisory Committees," Senate Subcommittee on Intergovernmental Relations, Committee on Government Operations, 92nd Congress, 1st Session, June 11, 1971.

79. All memorandum quotations from Hill and Knowlton, Inc., "A Proposal to the Air Transport Association of American for an Economic Eduction Program, March 23, 1971, reprinted in "Advisory Committees," Senate Subcommittee on Intergovernmental Relations, Committee on Government Operations, 92nd Congress, 1st Session, June 11, 1971, p. 134.

80. "Telephone Company Paid $3.5 Million to Hundreds of Professors in 1981," *Chronicle of Higher Education*, June 16, 1982, p. 2.

81. Tamar Levin, "Drug Makers Fighting Back Against Advance of Generics," *New York Times*, July 28, 1987, p. D4.

82. Interview with John McHugh, August 19, 1987.

83. Derek Bok, "The 350th Speech to the Harvard Alumni Association," September 6, 1986.

84. See note 6.

85. Bok, November 21, 1986.

86. Interview with Thomas Wilson, June 19, 1987.

87. Schwartz, p. 16.

88. Interview with Dreben, May 19, 1987.

89. Interview with Dreben, May 19, 1987.

90. *Dollars and Scholars* focused primarily on university concerns rather than public ones; as a consequence, it stated its support for public disclosure without making a formal recommendation in favor of it: "Although we favor the availability of disclosure statements to the public, the recommendation is limited to the policy requiring internal disclosure." Robert Linnell, ed., *Dollars and Scholars: An Inquiry into the Impact of Faculty Income Upon the Function and Future of the Academy* , Los Angeles: University of Southern California Press, 1982, p. 120.

91. Rosenthal and the Center for Science in the Public Interest, p. H8978.

92. Schwartz, pp. 16-18; Ridgeway, p. 196.

93. Mark, p. 266.

94. Quoted in Ridgeway, p. 196.

95. Quoted in Celia W. Dugger, "Professional Moonlighting: How the Harvard Faculty Spends its Time -- and Earns its Money," *Harvard Crimson* , October 24, 1978, p. 3.

96. In dialogue with Sheldon Krimsky in "The Ties that Bind or Benefit?," *Nature* , January 10, 1980, p. 13.